

# COMPUTERWORLD

*extra*



## ITS YEAR OF PROMISES



### LUCENT IS TRUSTED

WHEN YOU'LL SEE  
SAA PRODUCTS.

ASD—A SOFTWARE  
SUPERMARKET

THE NEW MACHINES



# Speed and endurance you can bet on.

Introducing a true thoroughbred among 24-wire printers, the new Hewlett-Packard RuggedWriter 480. It's the fastest printer in its class pounding out letter quality text at a furious 240 cps. And breaking the record for draft copies at 480 cps. So you get a full page of text in less than 10 seconds flat.

We take the lead in endurance, too. Our new RuggedWriter printer outlasts the competition by a longshot. Running a strong 20,000 hours MTBF, RuggedWriter reliability pays off big in keeping your projects on track.

Our pace doesn't slack off when changing paper types either. Just one push of a button takes you from tractor feed to cut sheet — instantly. All while producing crisp, clean letter quality

printing. For everything from spreadsheets to memos to multi-part forms.

The RuggedWriter 480 printer performs equally well for one person or five. On either a personal computer or small business system.

So take an inside tip and put your money on the industry frontrunner, the HP RuggedWriter 480 printer. Call your local HP sales office or dial 1-800-752-0900, ext. 905A and ask for the RuggedWriter Fast Pack. It's a sure bet.



 **HEWLETT  
PACKARD**

## COMPUTERWORLD

Extra

**Editor**  
 George Heriot  
**Senior Writer**  
 Michael L. Sullivan-Trener  
**Managing Editor**  
 Dennis Bell-Evans  
**Associate Managing Editor**  
 Steven M. Uhlir  
**Design Editor**  
 Marcy L. Johnson  
**Graphics Editor**  
 Michael J. Hayes  
**Graphics Assistant**  
 Avery J. Swanson  
 David W. Brunsley  
 Mary Gruber  
 Martin E. Bach  
 Diane L. Baker  
 Laura O'Connell  
 Marie T. Burke  
 James Daly

**Production Director**  
 Peter J. Kelleher  
**Senior Production Manager**  
 Linda Hornick  
**Production Coordinators**  
 Christopher P. Conca  
 Alan J. Kell  
 Beverly Wolf  
**Typeetting Manager**  
 Carol Hock  
**Picture Manager**  
 Peter M. Kelly  
**Computerworld Editor in Chief**  
 Bill Lefers  
**Computerworld Executive Editor**  
 Paul Giltz

Second-class postage paid at Framingham, Mass., and at additional mailing offices. Computerworld (ISSN 0895-4841) is published weekly, except: January (5 issues), February (5 issues); March (8 issues); April (3 issues); May (5 issues); June (5 issues); July (5 issues); August (8 issues); September (5 issues); October (5 issues); November (7 issues); December (4 issues) and a single monthly issue in December. Back copies of the first week in January by CW Publishing Inc., 275 Congress Street, Box 6171, Framingham, Mass. 01780-6171. Copyright © 1986 by CW Publishing Inc. All rights reserved.

Computerworld can be purchased on 35 mm microfilm or microfiche. University Microfilms, Periodical Service Dept., 300 Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is also issued twice to Circulation Dept. for subscription service.

Photocopies are permissible to photocopy for internal or personal use or the internal or personal use of specific clients in a granted by CW Publishing Inc. Copying for general distribution for advertising or promotional purposes is replaced with the Copyright Clearance Center (CCC), provided that the base fee of \$10.00 per copy of the article, plus \$0.50 per page is paid to CCC, 27 Congress Street, Salem, Mass. 01970.

Permissions to photocopy not granted by CCC must be obtained by the user. Special requests for reprint and permission should be addressed to Nancy M. Shewey, CW Publishing Inc., 275 Congress Street, Box 6171, Framingham, Mass. 01780-6171. Subscriptions and back issues (0895-4840 or in New Jersey and Canada 0895-4841) U.S. — \$44 a year; Canada, Central & So. America — \$119 a year; Europe — \$168 a year; all other countries — \$248 a year (air-speeded service). Five issues are required for change of address. Allow six weeks for new address to begin.



POSTMASTER: Send Form 3579 (Change of Address to Computerworld, Computerworld Dept., P.O. Box 1500, Framingham, Mass. 01784-1500).

CW Publishing Inc.  
 Box 9171, 275 Congress Street  
 Framingham, Mass. 01781-9171

COVER ILLUSTRATION:  
 PAUL MEISEL

## IBM'S YEAR OF PROMISES

## DEPARTMENTS

Comment	Vendor Viewpoints	How-To
—5—	—30—	—60—
The Bottom Line	—65—	Exit

## INTERVIEWS

## Ed Luente

*Back to business based on trust.*

—7—

## David McDowell

*Service before it breaks.*

—63—

## The Year of the Customer

*MIS managers rate IBM's changing style.*

By Michael Sullivan-Trener

—13—

## The new team approach with users.

—17—

## How Soon Till SAA Products?

*IBM and selected vendors are readying the first SAA releases.*

By Francis Gens

—19—

## Conforming to SAA.

—20—

## The Unix alternative to SAA.

—22—

## What's Still Missing from the 9370

*More parts are needed to create a complete mid-range system.*

By Elizabeth Horwitt

—25—

## Trying the three-tier strategy.

—29—

## One-Stop Software Shopping

*Applications finally receive their due at ASD.*

By Stanley Gibson

—32—

## Master Plan for the PS/2

*IBM hopes the micro market will dance to an SAA tune.*

By John Zemaitis

—39—

## A new software platform.

—41—

## Risk and Responsibility

*IBM as a systems integrator: mixing in other vendors' products*

By Edith Myers

—43—

## PRODUCTS

## The Last 12 Months

—47—

*The lifetime of a CPU.*

—57—

## The Next 12 Months

—55—

*The \$20 billion investment.*

—59—

# HAYES ANN TECHNOLOGICAL MODEMS THAT IM

It's long been thought that even the best of technology eventually becomes obsolete. A notion that we at Hayes could never really understand. And certainly never accept. So in defiance of it, we created the V-series Smartmodem 9600 and V-series Smartmodem 2400. Modems that actually get better as they get older. Because they not only incorporate the most intelligent features found in modems today, they also possess the capability to provide a long term growth path into the communications environments of tomorrow.

## V-SERIES SMARTMODEM 9600

This is the fastest modem we've ever made. It can send and receive data at 9600 bps and with adaptive data compression achieve an effective throughput of up to 19.200 bps. Point-to-point error control, forward error correction and data flow control ensure that data gets there accurately.

The V-series Smartmodem 9600 also comes with automatic feature negotiation, a self-operating capability that analyzes all options for modem link and then selects the optimum feature set with any Hayes modem for the most efficient transmission at the highest shared speed.

Synchronous and asynchronous communications modes as well as simulated full-duplex employing advanced CCITT V32 trellis code modulation and fast turnaround ping pong technology are also part of the package. Plus you'll get the capability to link up with a range of networks, including SNA. And soon V-series technology will offer an X.25 PAD option to further accommodate network environments of today. And the future.

 Hayes

# JOUNCES A CONTRADICTION: PROVE WITH AGE.

## V-SERIES SMARTMODEM 2400

With a design that implies in the name an achievement in time, the highspeed V-series 2400B offers point-to-point error correction, forward error correction, data flow control, built-in diagnostic feature, and both synchronous as well as asynchronous communication mode. And like all Hayes Smartmodem 9600B, it can link up with a wide range of networks — local, LAN, and be enhanced with an X.25 PAD option.

V series modems come in stand alone versions and internal versions. V-series Smartmodem 9600B and V-series Smartmodem 2400B. Internal versions are bundled with our powerful new Smartcom III communications software.

And as yet another rebuttal to the argument for obsolescence, we developed the V series Modem Enhancer — a separate stand alone device that will upgrade current Smartmodem 1200 and Smartmodem 2400 external modems to the new standards set by the V series products.

A closer look at the V series product line will reveal to you a revolutionary technology designed to be the beneficiary of time, not its victim. So contact your Hayes Advanced System Dealer or call 800-635-1225 for the one nearest you.

**Hayes**

Hayes

For everyone who ever wanted a single source for all their S/3X needs, Decision Data has good news. We are now that single source.

Because we've added S/3X processors to our extensive line of peripherals, you can now look to us for an individual printer ... or a total system. And everything in between.

Our S/3X processor capabilities include System/36 and System/38 models for lease or sale, for trade-ins and upgrades.

**Tailored financial packages.** You'll find we'll do whatever it takes to give you real value — whether

you're in the market for a processor upgrade or a total system.

You'll also find attractive financing options. And our leasing packages are highly flexible offering terms tailored to your particular financial and equipment requirements.

We will also give you a competitive quote on the fair market value of your current equipment and take it in trade. And we can handle upgrades swiftly and cost-efficiently.

**Quality service, too.** Through Decision Data Service, Inc., we offer you

a single and excellent source of service for every product we sell, and then some.

**A complete S/3X line.** Our products include all types of printers from matrix to laser; color and monochrome workstations; personal workstations; our Decision36™ system; memory boards and uninterruptible power supplies.

And now, of course, System/36 and /38 processors, too.

For more information about everything for your S/3X, including your S/3X, simply call 1-800-523-6529 ext. 125; in PA call 1-215-757-3322; in Canada 416-273-7161.

# Everything for your S/3X including your S/3X.

© 1987 Decision Data Computer Corporation.

**Decision  
Data  
Computer  
Corporation**  
A Division of International Computer  
400 Hanover Road  
Hanover, PA 19544-0996

Circle Reader Service Number 23

# IBM'S GREAT SEA CHANGE

BY DEIDRE DEPK

**T**here's a story about the 9370 told among IBM watchers this year that says a lot about how IBM is changing in 1987.

IBM Chairman John Akers picked up the phone one morning, the an-ecolite goes, and was forced to sit through a harangue from an airline industry executive. The company, Akers was told, was in the midst of an information systems over-haul and needed the 9370 product line immediately. The airline could not wait eight months until the 9370's planned introduction date.

Akers hung up the phone and called the 9370 product development staff. He told them to announce the machine ASAP. After all, he reminded his people, 1987 is the "Year of the Customer."

While the story may be exaggerated, the message it carries is not: IBM's Year of the Customer is more than rhetoric. The slogan represents a major change in the way IBM does business.

This year, the company has dramatically moved away from its tradition of dictating to customers — and to the rest of the industry — and moved toward becoming a responsive partner to customers and competitors. That effort has included revamping its product lines from top to bottom, changing the way products are sold, redefining corporate structure to increase efficiency and cut costs and, most astonishingly, changing its image.

#### Crucial response

IBM needed to make these drastic changes in response to declining revenue, a disintegrating customer base in the mid-range and eroding market share in the personal computer and mid-range arenas.

The effort will continue through 1988 and beyond. Still, the progress made this year is considerable.

Faced with ever-increasing competition across its product lines, IBM this year has upgraded and enhanced its mainframe 3090 series; delivered a 370-compatible mid-range offering, the 9370, along with software and communications products; and abandoned the famous Personal Computer line in favor of the Personal System/2. The company has also pro-



ILLUSTRATION BY BILL STURZ

vided guidelines for future hardware and software development by unveiling the Systems Application Architecture.

IBM has also, for the first time, aggressively pursued third-party resources to assist in a new thrust in vertical markets. This effort was combined with the release of new software offerings in the health care, financial services and travel industries.

But arguably more important than the changes in the products are the changes in the way they are sold. IBM said in May that it is now willing, even eager, to sell integrated solutions that include other manufacturers' hardware and third-party software. To install these systems, IBM will work with outsiders, such as value-added resellers and systems integrators.

The company has significantly changed its value-added reseller and dealer programs, requiring its partners to submit to extensive re-examinations of their businesses and undergo a vigorous training program in order to qualify for the PS/2 line.

IBM has also made it easier for customers to buy any of its products. This year, the company altered its Volume Procurement Amendment (VPA), which sets discounts for the largest customers. IBM simplified VPA paperwork and announced a plan to pay freight costs on products it ships to VPA customers, which could save the largest buyers tens of thousands of dollars each month.

Once preeminent in service and support, IBM saw its competitive posture suffer dramatically at the hands of third-party firms willing to

provide maintenance faster, cheaper and better. IBM has cut prices, provided on-site service with a 24-hour turnaround for nearly 90% of its customers and trained its technicians better in an effort not just to match but to beat the competition.

IBM's true strength has always been in marketing the company itself. For years, it succeeded at selling users the image of quality, reliability and service. Mounting competition from vendors offering the same thing at cheaper prices, together with IBM's very public financial decline, significantly weakened that image. IBM knew that new products and sales techniques were not enough to turn the perception around, so it launched an image over-haul and almost overnight dropped its cold-as-ice demeanor to become a friendly company.

Customers and industry analysts found themselves invited to frequent product briefings, where IBM actually gave them information on products under development. Gone was the bumbling Little Tramp character that had been used as a marketing symbol for the PC line and in its place was the friendly *M\*A\*S\*H* friend.

#### Openness and political virtue

The press has found, to its profound surprise, that IBM is adopting a policy of routinely granting interviews. Put into place was a special communications team charged with distributing positive information about the company. IBM removed itself from South Africa (although its products continue to be sold there) and diffused a broad stockholder attempt to force a complete withdrawal. IBM has even managed to somewhat alleviate its reputation as a slow-moving, bureaucratic organization by shipping some products early.

The company rather luckily pumped new vigor into the reputation of its research and development laboratories when a researcher working out of a basement room in IBM's Zurich facility chanced upon a ceramic material that dramatically improved superconductor conductivity. The discovery ignited frantic research efforts at companies around the world and landed two IBM scientists Nobel Prizes in physics this fall.

If IBM has gone to great lengths to be known to customers as friendly, sharp and efficient, the company has also taken pains to hone a very different image with its competitors. Once

*Continued on next page*

Depke is editor of "IBM Watch," a newsletter published twice a month in Boston by IDG Communications, Inc.

## SEA CHANGE

FROM PREVIOUS PAGE

renowned for its fear of lawsuits (thanks to the U.S. Department of Justice's decade-long antitrust suit, dropped in 1980), IBM has sent signals that it will aggressively defend PS/2 technology, even if that means going to court.

### Housecleaning

IBM's internal overhaul is as significant as its external efforts. Faced with consistently declining revenue, IBM badly needed to cut costs.

In 1986, as financial analysts accurately predicted a disappointing year for IBM, the company resisted Wall Street pres-

sure to change the no-layoffs policy set by founder Thomas J. Watson Sr.

Instead, the company announced the biggest restructuring in its history, shifting workers from manufacturing to sales and instituting an early retirement policy. The effects of those efforts have been felt this year; more than 10,000 employees have opted to retire early, and more than 15,000 of the company's 239,000 U.S. employees have moved into new positions. That effort is not over yet. IBM continues to shift workers into sales positions and will amass a 28,000-member sales force by the end of this year, up 20% from 1985.

The sales and marketing structure has been further realigned as IBM has phased out most of its marketing groups, trans-

ferring some of their responsibilities to headquarters at the Information Systems Group and some to the field through a new organization based on regional branch offices.

### A new breed of rep

Since January, IBM has added 13 branch offices. Working out of these locations is a new type of IBM sales rep: the account development manager. These sales agents, of which there are now 150, focus on implementing long-term strategies for IBM's intermediate and large accounts. The new structure, administered by the Information Systems Group, has allowed IBM to eliminate much of its sales middle management.

IBM is still in the midst of moving its

manufacturing and development groups and divisions into new headquarters in Somers, N.Y. The move has brought consolidation and staff cuts — primarily at the middle-management level — to nearly every product-oriented division in the company.

This year, hardware-obsessed IBM has finally given software its due: In July, the firm created the Applications Systems Division, which is charged with developing applications software and consolidating the company's relationships with third-party developers. At the same time, IBM announced the creation of a mid-range marketing-support organization intended to shore up IBM's dismal performance in that area.

Has IBM's recovery plan accomplished in 1987 what the company intended? Well, not entirely.

On the product side, several gaps need to be filled. The company will not deliver its System/36 and 38 follow-on product, known as Silverlake, until mid-1988. To

\*\*\*\*\*  
*IBM's revamped image and sales strategy may have convinced loyalists to continue to buy from IBM, but the company desperately needs to open up new markets and infiltrate accounts that do not buy IBM products.*

# BIG BANG WITHOUT BIG IRON!

### SSI Software Builds Bigger CPUs by Linking VM Systems

With VM/CMS's Single System Image (SSI) software, you get a bigger bang from your multiple VM processors. An SSI complex offers the reliability and availability of multiple-processor configurations, together with the convenience of a single-processor. That gives you reduced hardware costs, unlimited system growth, increased availability, separation of performance-critical workloads, and improved system performance.

### Alternatives to Hardware Upgrade

SSI allows you to postpone or eliminate the need for an upgrade to a bigger mainframe. You can get more computing power by connecting your existing CPUs or linking several smaller VM systems, rather than buying bigger iron. In many cases, you can save \$500,000 or more by using SSI and multiple processors to build a larger machine.

### Manage Information Center users more effectively

If you have a large number of PROFS or other information center users that are outgrowing a single processor,

SSI allows you to separate them onto multiple processors without inconvenience. The users can still communicate as if they are all on one processor.

**Eliminate duplicate software licenses, including SNA**  
 SSI's dynamic switching facilities save you the cost of having to license software on each processor since it can move virtual machines to other processors where licenses are held. In a two-processor SNA environment, eliminating the duplicate SNA-related software pays for SSI. With three or more processors, the savings are even more dramatic.

### SSI For Surpasses That "Other Company's" Offering

Unlike IBM's recently-released ISF, SSI has been successfully installed and used in many sites worldwide since 1980. Unlike ISF, SSI uses either HPO 4.2 and PVM. SSI supports off-processors in all groups. And an SSI complex supports up to 33 processors. It is priced by complex, not by CPU, and is installed by the VM experts of VM/CMS.

Contact Charles Aronovici at (617) 286-4434 to learn more about SSI and to hear how SSI users are successfully leveraging their VM system investments today.

### Single System Image (SSI)

from

VM/CMS Unlimited, Inc.  
 161 Granite Avenue, Boston, MA 02124  
 617 286 4434 800 443 4317

Circle Reader Service Number 24

**VM/CMS**

Expanding the vision of VM.

IBM's surprise, the market did not unquestionably buy into the PS/2 technology change and is not likely to do so until IBM's OS/2 Extended Edition is shipped next year. And IBM's next-generation mainframe, code-named Summit, is not expected until 1989.

### Wanted: New blood

IBM's revamped image and sales strategy may have convinced loyalists to continue to buy from IBM, but the company desperately needs to open up new markets and infiltrate accounts that do not buy IBM products.

That need is particularly felt in the mid-range area, where replacement buyers now far outnumber new customers. IBM's redirected and enlarged sales force will face the challenge of developing a new customer base in 1988.

Financially, IBM's cost cutting has done little so far to improve overall performance. Again, 1988 will tell whether IBM has done enough or must take more drastic measures, possibly including a reversal of its no-layoffs tradition.

As IBM's competitors — particularly Digital Equipment Corp., Compaq Computer Corp. and Apple Computer, Inc. — report escalating earnings and revenue, it is clear from IBM's 1987 financial performance that the company has not emerged from its slump.

While marketing and product improvements will help revive the firm's sales, IBM's challenge now is to maintain the momentum that is fueling its transition from a complacent industry giant to a proactive industry leader.

## INTERVIEW

# Ed Lucente

## BACK TO BUSINESS BASED ON TRUST



JOHN CROWLEY

**E**d Lucente is vice-president and group executive of IBM's Information Systems Group, with responsibility for market strategy for all IBM products. He was interviewed recently at the group's headquarters in Rye, N.Y., by *Computerworld* Extra Editor George Harvar and senior writer Michael Sullivan-Trainor.

### Why is 1987 the "Year of the Customer" for IBM?

The Year of the Customer has been interpreted to mean that this is the year the IBM salesman is focusing on the customer. The IBM salesman has always been focusing on the customer.

The concept originated at our strategic planning conference last fall, where we invited a group of executives from our customers to join us for the first time. John Akers and members of the corporate management board participated just as if there weren't any customers there.

We asked these customer executives to talk about what it was like doing business with IBM and what we do that they like and what we do that we should improve upon. Essentially, they told us they needed to know more about where we were going and where we were investing, particularly in software.

They told us we needed to remove some of the complexities in our contracts, in our terms and conditions, and acknowledge the fact that we were doing business on an international basis and that we needed to have more consistency with contracts around the world.

They also told us they wanted to see more IBMers who understood their business problems and could help them relate business problems to potential application solutions.

We had several of the key development executives present their strategic directions. The consensus on the part of the customers was that if we did nothing more than allow our customers to understand our strategic directions, it would tremendously benefit the customers and go a long way to cementing the partnership. They really felt they were making these decisions in the dark, and there were a couple of situations where they felt they went down the wrong path and wouldn't have had they known our directions.

We did not preannounce products to them. — we just showed them our strategic directions. But we used the executives responsible for making those investment decisions to give presentations.

As a result of that meeting, we told the manufacturing and development divisions that 1987 was the Year of the Customer and that their job was to get out and disclose their directions and make sure that their directions are consistent with where the customers are going. In the process, not only would the customers benefit, but we would benefit.

At the same time, we put together an internal task force to look at our contracts, terms and conditions and the overall complexity of doing business with IBM and said, "We're going to deal with that in 1987."

So the three things we did in 1987 were to provide more people with better business training, improve contracts and reduce complexity and get manufacturing people out talking directly with customers, showing strategic directions. Put those three things together, and that is what makes 1987 different from any prior year.

So '87 is a transition year. We're not going to declare '88 the Year of the Customer or say that '87 is the last Year of the Customer. It is not a year; it is a change in direction.

### How do you measure your three goals for the Year of the Customer?

I get a lot of opportunities to talk to customers directly. We have conducted three national forums and 10 to 12 regional forums where we have presented our strategic directions across the major parts of our product line to 1,000 to 1,200 customers.

Some of these customers wrote to me personally, and their reaction was the same as [those of] the executives who participated in our planning conference: "Best meeting I've ever been to with IBM. You should have done it a long time ago. I hope this isn't the only time you do it."

So that's one barometer of success. And

we're going to do it again next year, probably in the fall.

### What customers qualify to attend these conferences?

Next year — this is still tentative — we will probably have a forum for each of the divisions: for instance, the north-central division and the southwest division. It will probably be for the top 200 to 300 customers in each of those two divisions. It will be for the information systems executive, the CIO. Sometime coincident with that, we will have a similar program which will involve what I will call the "end-user executive." That will be a series of industry-oriented forums across the 13 industry segments, focusing on the top 500 accounts. We'll bring all manufacturing end-user executives together and give them that same strategic direction, but we'll also put heavy emphasis on the applications that support their industry.

### What is the status of your other two goals: reducing complexity and providing more people with business knowledge?

As far as the contract, terms and conditions and simplification are concerned, that is ongoing work. We have a group of six customers that we're working very closely with. Our corporate vice-president of marketing has taken it upon himself personally to understand the requirements of these six customers and make sure that the changes we are making conform to where these customers would like to see us go. They happen to be international customers that represent several different industries.

Essentially, we're trying to get back to doing business on the basis of trust, where the customer signs a contract once for hardware and software and then continues to do business with us on a transaction-by-transaction basis without having to go back and re-sign contracts.

I've called on customers, specifically Westinghouse, and spent a lot of time talking to their people about the complexity of doing business with us. They are working with us to make sure we continue to move in the right direction. We've reduced the number of volume procurement agreements, the number of exhibits and the number of things our customers have to sign.

For example, there is a single contract for hardware and software for volume procurement agreements. In the event it is necessary to

*Continued on page 10*

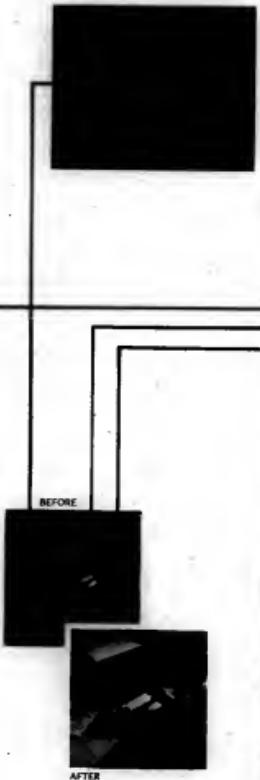
# The Preferre to Network and

The Network and Terminal Group of products from Duquesne Systems helps you measure network performance and enhance the productivity of your network users. Designed for MVS and VM systems, these products let you streamline access and expand connectivity to all data and application sources and provide information that lets you determine if your network is being used most effectively.



## Single Point Entry Network Access

Network Access improves performance by giving you a common entry point and providing easy, menu-driven access to all your applications. System-wide message sending lets all users communicate through a single facility. Network level security can be maintained in a single place.



Duquesne Systems' Network and Terminal Products are installed in over 1,000 sites worldwide. When integrated, they make your network even easier to access and manage.

With TPX and Network Access, you can provide application access services that best meet the needs of your users. TPX efficiently provides multiple session management for users who need this facility.

## Session Management TPX (Terminal Productivity Executive) —The Industry Leader.

With TPX, you don't have to log off one application to switch to another. It's a full-function, VTAM-based session manager that lets you log on to many applications at the same time. You can select applications from a full-screen menu and switch from one application to another with a single command or PF key.

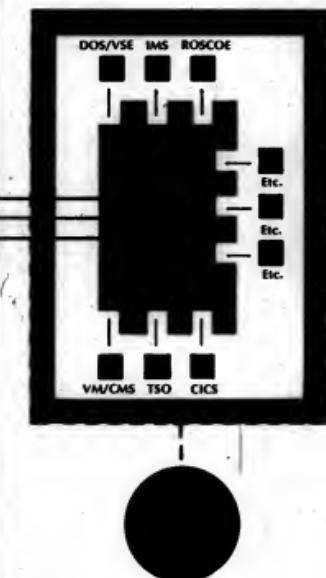
# Network Approach Terminal Productivity

## VTAM Monitoring NetSpy

NetSpy is a VTAM network performance and end user response time monitor that lets you decide if your network

When using a multiple session manager such as TPX, you can access many different applications from one terminal. NetSpy has interfaces to TPX to measure true "end-to-end" response time. This information is not available from any other source.

be programmed to connect to and access an external data network, perform a retrieval, journal the results, and then disconnect—all initiated with a single keystroke.

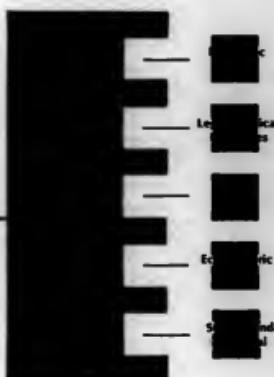


is being used most effectively. It gives you information that helps in the areas of network control, management, capacity planning, and systems programming.

## Communication STX (SNA to X.25)

STX gives you easy access to many data bases on an X.25 network from a single 3270 terminal. It simplifies logon procedures, provides high speed links to the network, and automatically connects you to desired data bases. This keeps access time to a minimum and eliminates the inconvenience of using extra terminals, modems, and phone lines.

By giving the TPX user a session with STX, the ACL (Automated Conversation Language) feature of TPX can



Find out how these Network and Terminal Productivity products can make your network environment more productive. Call us today to arrange a free, 30-day trial.

**(800) 323-2600**  
or  
**(412) 323-2600 In Pennsylvania**



**DUQUESNE  
SYSTEMS**

## BUSINESS

CONTINUED FROM PAGE 7

have some kind of technical disclosure, we require today that each be dealt with on an agreement-by-agreement basis. We're going to use this single-library-card approach here again.

The idea is that the customer signs four or five pieces of paper and puts them in the drawer. We put our copy in the drawer. We now have a basis upon which to do business. Then we just do business.

**So the goal of removing the complexity from contracts has not been met yet?**

The job's not finished. The task force is

still in effect. We made some major changes in June.

In the third area, we have just completed the largest redeployment effort in the history of our company. We've moved some 4,800 people from our plants and labs and another 3,000 from our headquarters staffs.

When you take that into account, plus the hiring we did, minus the people that left during the retirement incentives, we will increase our branch office organization, sales and systems engineering support by 27% by the end of the year over this last period of some 18 to 24 months.

Two-thirds of those people had to go through training, because they were not previously in branch office positions. The bulk of that resource is just being felt by

the customers.

As far as what's next, we've been working with some pilot accounts to develop a set of models that enable us to relate information systems investments to their overall business strategies. I talked about this for the first time publicly at the Guide meeting in September.

The technique is to use a combination of IBMers and customers over a five-day period to analyze the business objectives of the customer and analyze his portfolio of applications. Then, using proprietary software and a fairly large data base to compare this customer against a composite of his competitors, we point out where there are opportunities to use information systems to develop new applications to improve their overall business plan in

terms of market share and profitability.

Starting at the end of this year and through the balance of 1988 and into '89, this program, which we are calling IS investment Strategies, will become the platform for most of our marketing activities.

My objective is to make sure that the IBM marketing organization is absolutely the best equipped sales force when it comes to understanding where our customers are going, what kind of business problems are and what kind of applications we offer that represent solutions to those business problems.

That's something we have always been very good at, but the nature of the applications is changing on our. Our customers are now talking about applications that are a lot different than doing something they're doing today, only doing it faster.

They're really talking about applications that change the way they do business. And that means that, in many cases, you need to have not only the information systems executive involved, you've got to have the end-user executive as well, because that's the person who is trying to develop a product and develop a market.

We want to establish a stronger partnership between the sales force and the customers by relating to a common set of business problems and to make sure we're in there marketing applications solutions, not just hardware and software. Based on the pilot efforts and a fair number of customers we've put through this exercise, we're very confident and committed to implementing it across the board, as fast and for as many customers as we possibly can.

The other thing we're doing is investing a substantial amount of our training dollars in increasing the technical specialization of our systems engineering organization.

We've now concluded on a number of specialty skills that we think cover the gamut of requirements. For example, one set of skills is the area of data base applications enablers, including products like DB2, Applications Systems and CSP [the Cross System Product], a group of software programs that go hand in glove with helping customers develop applications.

We have concluded on how many independently technically trained system engineers we need in that category, and we've done that across some 22 different technical skill categories.

**Are the Corporate Service Amendment (CSA) and the Mid-range System Amendment part of the consolidated contracts process?**

No. For example, the hardware and software agreement is the acquisition of those items, not maintenance. In maintenance contracts, to date we have had contracts for every machine. By introducing the Corporate Service Amendment, we now give the customer the opportunity to embody all the products he has under maintenance under a single contract.

But there are problems with that. To give you an idea of what I mean when I say the work is not done yet, machines go off of warranty at different times, and they are installed at different times. So you have to continue to issue updates to any existing contract.

**A key part of the CSA seems to be the discounting schedule. Formerly, IBM said it did not offer**

All  
testing and debugging  
software  
is the same.

(more or less)

Top programmers know that all testing and debugging software is not the same.

Ease of use and comprehensiveness is what makes the difference... XPEDITER is the programmers' choice.

More programming environments including MVS, MVS/KA, VM/CMS, TSO, ISPF, CICS, IMS/DC, databases, BTS, batch, ROSCOE, HOGAN, COBOL.

(including application generators) and Assembler.

**More productivity** because XPEDITER makes no changes to the source code or load modules and doesn't require the TEST option. You spend less time compiling.

**More features** including the most powerful debugging commands in the industry entered from a single ISPF-like panel.

**More proven performance** with thousands of programmers at hundreds of major shops using XPEDITER.

**More training, support and user information** from Application Development Systems' 15 years of software development experience and service.

**More information,** call (800) 358-3048. In Canada, call (800) 433-3563 and in Minnesota, call (612) 560-8633.

### XPEDITER®

Application Development  
Systems, Inc.  
6840 78th Avenue North  
Minneapolis, MN 55445

ISPF is a registered trademark of Applied Data Research.

HOGAN is a registered trademark of Hogan Systems, Inc.

Circle Reader Service Number 26

**discounts on maintenance. Is discounting part of the Year of the Customer campaign?**

That's not, per se, in response to the Year of the Customer. We have, for a long time, had a series of network and systems maintenance tools that we've used to help reduce our overall cost of maintaining customer installations. We have encouraged customers to use those.

One of the things we're doing with the CSA is that if the customer is willing to use those tools and they agree to keep their installation at some level of maintainability, we pass our savings on to them in the form of a discount, a lower price for the maintenance. If the customers don't use those tools, they don't qualify for the CSA.

That was really in response to a couple of things. One, just as we have customer satisfaction surveys with marketing, we have satisfaction surveys for maintenance. And we detected — not just here but particularly in some of our non-U.S. countries — increasing dissatisfaction with the overall service or maintenance business.

It was the combination of the lack of visibility of the maintenance man as we were doing more of our servicing remotely, the unwillingness on our part to do certain things and, again, this contract business, the fact we were billing them so often.

We attacked this thing on an international basis to come up with what we should be doing in the service business. We had 50 to 60 people around where we went in and said, "Let's see what happens if we let you use these tools." We did that from mid-1985 to mid-1986. The combination of these satisfaction surveys and what we learned from the pilot accounts eventually led us to a whole series of actions. That set of actions included transferring our programming support reps from our National Service Division to our marketing divisions, but also helping the customers manage their overall installations problems, installations planning, systems relocation and so forth.

**When will more technical details be released concerning the Systems Application Architecture (SAA)?**

The technical interface information is scheduled to be released sometime during the fourth quarter. That will be a continuum of events every 90 days with sort of a two-year reach. In other words, anything we're going to be incorporating within the next two years, we'll tell you about.

For example, at Gindle, one of the questions was, "Is RPG part of SAA?" The answer is yes. They asked, "Well, why haven't you told us?" The answer is, because we're not going to tell you anything for sure until we have a technical plan that has it deliverable within two years.

So that's a set of guidelines we have put on the development organizations and is the basis upon which we'll continue to release information about SAA.

**IBM's mid-range strategy seems to be coming down to a dual-architecture strategy consisting of the System/36 and 38 and the 370. What does the customer gain by having a choice between two architectures rather than one, as some of your competitors can offer?**

First, we have two mid-range, general-

purpose architectures. For example, customers don't consider Unix a general-purpose architecture, but, certainly, we plan to support Unix across the board, including the mid-range.

There are more than a quarter of a million System/3X architecture machines installed, and without question, the most successful mid-range architecture in sheer numbers is the 3X. That may be one of the best kept secrets. So if one were to say, "Let's talk about IBM's premier mid-range architecture," the premier mid-range architecture is the 3X.

The next question is, "If that's such a good architecture, why do you need to have another general-purpose architecture?" The answer is because we have a whole lot of customers that have 370

mainframe hosts installed who want to distribute that same application software on mid-range 370s.

In response to that, we announced the mid-range 9370 and, in particular, offer the VM base of capability so the customer can have complete portability between the mainframe and the mid-range.

I wouldn't advocate that any customer, for any reason, install both architectures in the mid-range, but it would be absurd for us not to have two architectures given those conditions I just described.

**You mentioned the redeployment of personnel from headquarters and the labs and plants. Is there a hiring freeze in certain areas of the company?**

Yes there is. Right now, the only place I think we're hiring are programmers and marketing. But obviously, we're being very selective and careful about it. We want to make sure the hiring we're doing is critical hiring for very specific reasons. We will be hiring in marketing in 1988 at equal to or maybe higher levels than in 1987.

It's not a corporate freeze. If you ask where we're hiring, I would say it's where I told you. I don't think, for example, there's a lot of hiring being done in direct manufacturing, because as plant efficiencies improve and automation, programs have been implemented, there has been less and less need for hiring. But I wouldn't say we're under a corporate hiring freeze.

# Value-Added Marketing

... A New Benefit  
For Computer And  
Telecommunications  
Equipment Users

Creative Financing

Financial Soundness

Reliability

Objectivity

Long-term Outlook

Dependability

Integrity

*Extra*

# THE





NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO. 124 DALTON, MA 01227

POSTAGE WILL BE PAID BY ADDRESSEE

**Computerworld Extra**

Post Office Box 300  
Dalton, MA 01227-9882



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO. 124 DALTON, MA 01227

POSTAGE WILL BE PAID BY ADDRESSEE

**Computerworld Extra**

Post Office Box 300  
Dalton, MA 01227-9882

# COMPUTERWORLD

*Extra*

Reader Service Card  
Issue: November 18/Expires: March 4, 1988

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_ Phone \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

A. Please check the business/industry in which you work: (check one)

End Users  
 10 Manufacturer (other than computer)  
 20 Financial/Insurance/Real Estate  
 30 Healthcare/Law/Education  
 40 Wholesale/Retail/Trade  
 50 Business Service (except DP)  
 60 Government - State/Federal  
 70 Public Utility/Communication Systems/Transportation  
 80 Mining/Construction/Petroleum/Refining  
 90 Other User (please specify)

Vendors  
 10 Manufacturer of Computers, Computer-Related Systems or Peripherals  
 11 Computer Service Bureau/Software/Planning/Consulting  
 12 Computer Peripheral Dealer/Distribution/Reseller  
 13 Other Vendor (please specify)

I have circled #200 on the Reader Service Card to enter my Computerworld subscription for one year, 51 weekly issues and 12 Computerworld Focus issues for \$44 and please bill me later. This rate valid only in the U.S.

# COMPUTERWORLD

*Extra*

Reader Service Card  
Issue: November 18/Expires: March 4, 1988

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_ Phone \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

A. Please check the business/industry in which you work: (check one)

End Users  
 10 Manufacturer (other than computer)  
 20 Financial/Insurance/Real Estate  
 30 Healthcare/Law/Education  
 40 Wholesale/Retail/Trade  
 50 Business Service (except DP)  
 60 Government - State/Federal  
 70 Public Utility/Communication Systems/Transportation  
 80 Mining/Construction/Petroleum/Refining  
 90 Other User (please specify)

Vendors  
 10 Manufacturer of Computers, Computer-Related Systems or Peripherals  
 11 Computer Service Bureau/Software/Planning/Consulting  
 12 Computer Peripheral Dealer/Distribution/Reseller  
 13 Other Vendor (please specify)

I have circled #200 on the Reader Service Card to enter my Computerworld subscription for one year, 51 weekly issues and 12 Computerworld Focus issues for \$44 and please bill me later. This rate valid only in the U.S.

Please Use This Card For Product Information



Circle the # that corresponds to the number at the bottom of the item in which you are interested

1 21 41 61 81	101 121 141 161 181
2 22 42 62 82	102 122 142 162 182
3 23 43 63 83	103 123 143 163 183
4 24 44 64 84	104 124 144 164 184
5 25 45 65 85	105 125 145 165 185
6 26 46 66 86	106 126 146 166 186
7 27 47 67 87	107 127 147 167 187
8 28 48 68 88	108 128 148 168 188
9 29 49 69 89	109 129 149 169 189
10 30 50 70 90	110 130 150 170 190
11 31 51 71 91	111 131 151 171 191
12 32 52 72 92	112 132 152 172 192
13 33 53 73 93	113 133 153 173 193
14 34 54 74 94	114 134 154 174 194
15 35 55 75 95	115 135 155 175 195
16 36 56 76 96	116 136 156 176 196
17 37 57 77 97	117 137 157 177 197
18 38 58 78 98	118 138 158 178 198
19 39 59 79 99	119 139 159 179 199
20 40 60 80 100	120 140 160 180 200

Circle the # that corresponds to the number at the bottom of the item in which you are interested

1 21 41 61 81	101 121 141 161 181
2 22 42 62 82	102 122 142 162 182
3 23 43 63 83	103 123 143 163 183
4 24 44 64 84	104 124 144 164 184
5 25 45 65 85	105 125 145 165 185
6 26 46 66 86	106 126 146 166 186
7 27 47 67 87	107 127 147 167 187
8 28 48 68 88	108 128 148 168 188
9 29 49 69 89	109 129 149 169 189
10 30 50 70 90	110 130 150 170 190
11 31 51 71 91	111 131 151 171 191
12 32 52 72 92	112 132 152 172 192
13 33 53 73 93	113 133 153 173 193
14 34 54 74 94	114 134 154 174 194
15 35 55 75 95	115 135 155 175 195
16 36 56 76 96	116 136 156 176 196
17 37 57 77 97	117 137 157 177 197
18 38 58 78 98	118 138 158 178 198
19 39 59 79 99	119 139 159 179 199
20 40 60 80 100	120 140 160 180 200

Please Use This Card For Product Information



*Extra*

# YEAR OF THE CUSTOMER

*Did IBM treat you royally?*

BY MICHAEL SULLIVAN-TRAINOR

IBM is beginning one of the most drastic periods of change in the company's 63-year history. Strategies and policies that the \$51 billion corporation has counted on since the days of Thomas J. Watson Sr. are no longer valid. Slow revenue growth is threatening IBM's long-held goal of becoming a \$100 billion company by 1990.

To fire IBM's stalling engines, Chairman John Akers has initiated broad measures that will remake the image and the substance of the company in the next five years. While this year is noteworthy for significant IBM product deliveries — a new mid-range processor family, communications software and hardware and a strikingly different personal computer series — 1987 is more importantly IBM's year of promises.

In January, Akers promised that by 1988, IBM's customers would perceive a different, more open company, one that is more interested in meeting their needs than pushing its hardware. This promise grew out of a strategic planning meeting in late 1986. For the first time, customers were invited to a session to hear about future product directions firsthand from IBM executives.

During the course of the meeting, the customers asked Akers why they weren't mentioned in any of IBM's traditional goals. Akers responded with a new goal for the company: enhancing customer partnerships. For 1987, this theme became known as the "Year of the Customer." The many interpretations of the phrase come down to one general idea: IBM wants to improve its relationships with MIS managers and executives.

"They've made a concerted effort to get to my level," says John Putney, executive vice-president of office and information systems for the Teachers Insurance & Annuity Association of America's College Retirement Equities Fund, based in New York.

"They weren't reluctant to work with us before," he says. "It was more benign neglect. They had no incentive to spend time here. Now, they have gone back to what they were doing in the '60s. I was disappointed I hadn't seen it before now."

IBM's actions in carrying out Akers' mandate hark back to the way IBM worked years ago, with more market representatives and service personnel on-site and more interaction between MIS and IBM.

*"Everyone has a different view of what*  
*Continued on next page*

Sullivan-Trainor is a Computerworld senior writer.

## CUSTOMER

FROM PREVIOUS PAGE

the Year of the Customer means," says Bill Steak, group director of IBM's telecommunications marketing and service. "The Year of the Customer is really a state of mind, a rallying point."

A new twist this year is how much IBM will reveal about its product directions.

"IBM has opened up this year to a de-

gree that I have never seen," says Dean Redfern, corporate vice-president at Mc-

Cormack & Dodge Corp. in Natick, Mass.

"I have signed 112 non-disclosure agree-

ments this year," Redfern says.

"That is more in one year than I have signed in my past nine years."

**"IN MANY accounts, we are losing business opportunities to an advertising campaign, or the customer elects to build more stores as opposed to investing in information systems"**

JACK HAMMOND  
DIRECTOR, IBM'S INFORMATION SYSTEMS  
INVESTMENT STRATEGIES

Also different from years past are the changes IBM is making in its perception of the industry. Traditionally strong mainframe sales caused IBM to be reluctant to accept the trends of the '80s: distributed processing and the popularity of

minicomputers to drive it, end-user computing and the broad acceptance of personal computers and the need for efficient software that supports strategic applications. A general industry slowdown and the particularly sluggish growth of main-

frames sales forced IBM to wake up to the changes these trends were bringing about.

IBM responded with promises: System Application Architecture (SAA), a single software architecture for all major hardware environments; Silverstar, a processor combining attributes of the System/36 and 38; and a new division dedicated to developing applications.

"They seem to be more oriented toward end-user computing than in the past," says Ted Jastrzemski, an analyst at Framingham, Mass.-based International Data Corp. (IDC). "IBM's a huge organization, and it is very difficult for them to change in one year. They're taking steps in that direction."

### Historic steps

Internally, IBM also took historic steps. To trim operating expenses, it closed manufacturing plants or turned them into distribution centers — something it had never resorted to. Holding to a pledge that it would never lay off any employee, IBM instead transferred workers by the thousands from manufacturing to marketing and service.

While IBM's moves this year are aimed at limiting competitors' market gains or reducing overhead, one of the more significant efforts initiated in 1987 seeks to counter customers' decisions to invest in other areas of their business.

"In many accounts, we are losing business opportunities to an advertising campaign, or the customer elects to build more stores or to buy more locomotives as opposed to investing in information systems," says Jack Hammond, director of IBM's Information Systems Investment Strategies (ISIS).

"We want companies to look at information systems as instruments of growth, the same way they look at other capital investments," he says.

ISIS is a methodology for developing information systems applications that directly address a company's strategic business goals. The campaign will be the focus of IBM's marketing efforts for the next several months (see story page 17).

Even with ISIS and the changes wrought by the Year of the Customer drive, IBM still has a lot of rethinking to do.

"DEC has realized they are not in the computer business; they're in the business solutions business or something like that," M&D's Redfern says. "I don't think IBM realizes that yet. Most of the IBMers I see still think they're in the computer business."

"They can't keep coming out pitching newer, better, faster hardware. There has to be a cause and effect between that and the economy of a business," he says. "They haven't made that connection yet. Once they do, they will take off again."

### No difference to customer

In the meantime, MIS executives are reacting cautiously to the steps IBM has taken to renew its image. "It's the products that back up the promises that make the difference in the long term," says IDC's Edward Aylor, program manager of Software Technology Services. "These marketing blitzes don't make that much of a difference to the customers."

Because IBM has historically been reluctant to reveal its long-term product strategy, it is the new sharing of product direction with MIS and consultant

*Continued on page 16*

## The C-815 Supra 24-pin printer My life in the fast lane



I used to spend a lot of my time waiting for our old printer to finish cranking out the paperwork for our busy corporation.

But since we bought the C-815 Supra from C. Itoh Digital Products, I never have a moment to spare. I'm living life in the fast lane.

### Multi-applications solution

Our department managers like the C-815 Supra. It's like having two printers in one. It prints high volume data processing output, like invoices and spreadsheets, at speeds up to 570 characters per second (cps). And for word processing, the Supra prints sharp, clear, high-speed letter quality at 162 cps.

What really sold our DP/MIS management on the Supra was *Byte Magazine* and *InfoWorld* listing the C-815 as the fastest 24-pin printer in their independent test. And they were right. The Supra's speed and versatility increased our productivity.

### Forms expert

Our executives are really impressed with the

Supra's dependable, rugged paper handling. It manages continuous forms, labels, letterheads and up to 6-part invoices with its rear or bottom feed paper paths. In addition to its standard paper tractor, the C-815 also features a single-bin automatic sheet feeder that's upgradeable to dual bin.



Whether it's high volume spreadsheets and multi-part invoices or letter quality business letters and presentations, the Supra is fast and reliable.

Circle Reader Service Number 28

### Shared investment

The finance department says the Supra is a great investment since C. Itoh has a long-standing reputation for high quality, durable printers. And because it has built-in emulations for the IBM ProPrinter XL™, Toshiba P551™ and Quantel Spirit™, we don't have to invest in any new systems or software. It works with our new IBM PC/XT™, dos and such popular software packages as Lotus 1-2-3™, WordPerfect® and ChartMaster™.

With its top-notch output, superior paper handling and extremely fast printing, all the departments in our company now know what life in the fast lane is all about. I know I do.

**C. ITOH**

C. Itoh Digital Products, Inc.  
15300 South Hamilton Avenue, Suite 110  
P.O. Box 9085 • Torrance, CA 90508  
(213) 527-2110 or 800-423-0290

# Automated operations start with AutoMate/MVS™

Introducing automated operations to your data center may seem like an enormous task if you're unsure of where to start. Head in the right direction with AutoMate/MVS, the first automated operations product from Duquesne Systems. AutoMate/MVS is a full function, rule-based automation tool that solves many operation problems in today's complex MVS data centers.



Operators use their time more productively with the automated console tool—AutoMate/MVS

## AutoMate/MVS™

As the volume of online transaction processing increases, operations personnel face increasing amounts of low-level repetitive tasks and decision making. Service-level objectives become more difficult to meet, and the chance of human error increases dramatically. AutoMate/MVS relieves operators from these mundane, repetitive tasks and decreases the possibility of human error. The end result is increased productivity and system availability.

AutoMate/MVS has an extensive list of features which include:

- Rule-Based Engine for message management and time-driven automation
- Task Automation for automating complex events
- Extended MCS console capabilities for better system and console support
- Alternative Operator Interface for easy use and fewer operator errors

For years, data centers worldwide have benefited from system productivity software from Duquesne Systems. Our reputation as a leader in the area of operations has been built on providing quality products and support. Protecting data integrity, managing and allocating tape drives, consolidating consoles, and management and retrieval of SYSLOG in multiple CPU environments are our specialties.

Start automating your operations today with Duquesne Systems, the company that started operations productivity. For more information, call **(800) 323-2600**, or **(412) 323-2600** in Pennsylvania.



DUQUESNE  
SYSTEMS

# CUSTOMER

CONTINUED FROM PAGE 14

community that appears to be the most drastic change.

"They have been much more open in answering our questions," says Joseph Vincent, director of computer performance and capacity planning at Humana, Inc., a Louisville, Ky.-based health care management company. "They were so candid on MVS, I wish I had taped it."

Marketing representatives are no longer the lead speakers at customer or analyst presentations. IBM employees with product development responsibility are standing up and answering questions about product directions. Redfern attends IBM briefings as an executive in D&B Bradstreet Corp.'s information systems group. (D&B is M&D's parent organization.) At the briefings, he finds that he can ask any question about IBM's next-generation mainframe, for example, and receive a thorough answer.

"I actually met my first IBM programmer, who is coding the product I was interested in. That's never happened before," Redfern says. "When I finally met him, I offered him a job. That's probably the last one they

will let me need."

In the short term, IBM may lose more business than it will gain with this strategy. "We all want to ride the wave of new products up, not down," Redfern says. Discourses on Silverlake, for example, will prevent users from buying System/36 and 38 machines. In the past, IBM would have pushed those systems right until the day of the new announcement.

In the long term, IBM hopes to gain a tighter relationship with MIS executives, a relationship the company hopes will lead to equipment sales.

#### In time

In some cases, that strategy may pay off. "I have more confidence in knowing what is likely to happen, I will try to be more in the mainstream," Teacher Insurance's Putney says. "Before, I felt their direction was not one we were going in. Now we are in tune with them, and they are more in tune with us."

The Smithblake Beckman Corp. Animal Health Products division in West Chester, Pa., is another organization that has been enjoying IBM's new style.

"They decided to take a better approach with us. We're a national account," says Terrence

Connor, the division's MIS manager. IBM conducted a three-day seminar for Connor's group before it was announced. Connor has also been kept informed of developments with Silverlake.

But will IBM's efforts affect his purchase decisions? "I don't

make of medical supplies. "The new products information was somewhat of a tease. They told us about Solutionipacs as if they were in place all over the country. When we asked about them, they said they weren't available yet."

Humana's Vincent took IBM

contingency planning for CPU acquisitions. "They said that the MIPS rate would be three digits by 1990, and the first digit would be a one. That's not the answer we needed for good planning. It could be anywhere from 100 to 199."

#### Secrecy still exists

Frank Lesser, president of Financial Technologies, Inc. in Chantilly, Va., is also having difficulty getting answers from IBM, despite the new openness. "The cloak of secrecy has not gone up for us. I've been to Frugheepkeepe and Endicott, N.Y., and things still seem fuzzy." Lesser's frustration stems from his company's interest in purchasing a small 3990. The firm owns a Model 150 and asked whether IBM might offer a smaller system. The IBM representative Lesser spoke with said there were no plans to produce one. Six weeks later, the Model 120 was announced.

"Then I asked about an XA version of VM," Lesser says. "The answer was almost like taking a survey: Early returns indicated it would be available in 1988. That was the week before VM/XA was announced."

MIS executives who already feel they are on the top of IBM's

*Continued on next page*

## IBM's 1987 PROMISES

- ① Developing an IBM user team approach to strategic business planning.
- ② Shaping concepts and roles that connect with business needs.
- ③ Use more open and practical strategy to drive better customer placement.
- ④ Make service personnel more available to customer needs.
- ⑤ Continue field and data reporting to meet user communication needs.
- ⑥ Provide a single software environment across all platforms.
- ⑦ Create a wide range of products and services to support the user.

CW CHART

look at them as unfavorably as I used to," he says. "IBM used to be here with the other vendors and say: 'Here's our solution. Take it or leave it.' Now they are scrambling more, just like Wang, Hewlett-Packard or DEC."

Other MIS executives are less impressed by IBM's efforts. "They have been a little more cordial and informative, but that is incidental," says Ray Teppenhardt, MIS manager at C.R. Bard, Inc. in Murray Hill, N.J., a

up on its offer to provide details of future product strategy, so IBM flew Vincent and his staff to Frugheepkeepe, N.Y., to brief them on the 3990 and XA.

"They gave us very good answers on most things but half an answer on our biggest question," Vincent says. The question was this: What will the millions of instructions per second (MIPS) rate be for high-end 3990s by 1990? This information is important to the group's

## What? Develop and run CICS applications directly under VM? Yes-Finally, with VMCICS!

### Introducing VMCICS/Development System and VMCICS/Execution System

VMCICS/Development System and VMCICS/Execution System are powerful, easy-to-use systems that let you develop and run command-level CICS programs under VM. With no guest operating systems. No software modifications. No hardware restrictions — from 9370 to 43XX to 30XX and all compatibles.

With VMCICS/ES you can run current CICS applications at savings far in excess of your one-time investment. And with VMCICS/DS you can develop, debug and test CICS applications faster and more easily than ever — allowing you to significantly improve programmer productivity.

Both VMCICS/ES and VMCICS/DS provide improved

stability for CICS applications. Each application runs under its own "CMS Machine," so individual users can't crash the whole system.

Best of all, VMCICS/ES and VMCICS/DS are available from Unicorn Systems, the leading supplier of CICS products for the VM Operating System.

So why delay? Call us today toll-free at 800-222-6974 (from California call 800-232-CICS).



Unicorn Systems Company  
3807 Wilshire Boulevard  
Los Angeles, California 90010  
(213) 380-6974

WE ARE A DIVISION OF UNICORN SYSTEMS COMPANY

Circle Reader Service Number 30

## PRO-Q-CICS

An on-line program development tool.

### PROFESSIONAL UTILITIES

PRO-Q-CICS offers a solution to rapidly escalating programming costs and to the scarcity of good on-line programmers. In effect PRO-Q-CICS, a PC-based program, acts as your on-line programmer.

The operator simply "paints" the screen, supplies the characteristics of the fields, and commands the program to generate the code.

PRO-Q-CICS generates the BMS map and the COBOL program necessary to SEND and RECEIVE the map.

Existing BMS maps can be read by PRO-Q-CICS and easily maintained and modified.

WITH PRO-Q-CICS JUST A FEW KEYSTROKES ON A PC, AND ONLY A FEW MINUTES WILL COMPLETE THESE TASKS, WITH CONVENTIONAL METHODS, EVEN AN EXPERIENCED PROGRAMMER WILL REQUIRE QUITE A FEW HOURS TO DO THE SAME WORK.

### ORDER YOUR SITE LICENSE FROM PROQUTIL INC.;

Aetna Centre, 145 King Street W.  
Suite 1002  
Toronto, Ont. M5H 3X6  
(416) 360-7939  
Telex: 6-218177  
Fax: (416) 367-1954

\*CICS and BMS are trade marks of IBM corporation. PRO-Q-CICS is a trade mark of PROQUTIL INC.

Circle Reader Service Number 31

NOVEMBER 18, 1987

# THE NEW TEAM APPROACH WITH USERS

For the next several months, IBM's marketing efforts will be aimed at swaying the expenditures of its customers away from other capital expenditures and toward investments in information systems.

Through a program called Information Systems Investment Strategies (ISIS), IBM marketing representatives will work with MIS and business executives in selected corporations to develop business plans that identify areas in which information systems' money can most effectively be spent to increase the company's revenue.

Began as a pilot program at IBM's Advanced Business Institute in Greenwich, Conn., ISIS is being promoted internally at IBM so that marketing representatives can offer the program to certain customers who express an interest in it. "We plan to expand the number of participating companies fairly dramatically next year," ISIS Director Jack Hammoud says.

The program requires an average of two months of data collection and analysis, in which a company's finances, business goals and information systems investments are compared with what is typical for the industry. No fee is charged to the participants, who are asked to discuss their business plans confidentially with an IBM marketing representative. The user company receives recommendations on revenue-generating information systems investments.

"The way it is being described in press releases and in other places, ISIS seems a little like a magic wand, and it really isn't," Hammoud says. "It just gives us a starting point to discuss business issues at a different level from that of how fast products are or what the

MIPS rate is. It's not a revolution of any kind. We've had some outstanding successes — and some duds, too."

IBM hopes to gain better relationships with customers and, ultimately, to increase business through the program. But ISIS involves a substantial investment of resources: specifically, dedicating a marketing representative's time to coming up with recommendations that may or may not be accepted. Because of the amount of time required for the analysis, IBM is promoting ISIS cautiously.

"Most of the customers we've talked with are willing to do it. If it's torn between too much publicity and not enough, if it's too popular, we won't be able to do it," Hammoud says.

IBM's marketing representatives attend a series of sessions at the Advanced Business Institute and meet extensively with customers to carry out the program.

The first session is an introductory review of the process held before the representative calls on the customer. After an initial meeting during which the customer agrees to participate, the representative engages in four to six weeks of data gathering.

Information regarding the customer's computer system investments — in both IBM and non-IBM equipment — is collected, along with descriptions of the business plan.

In parallel with that data collection, IBM compiles a profile of the company and the industry in which it operates based on publicly available financial data, such as the Value Line, Dow and Bradstreet and Standard and Poor's data bases.

A model of the company is then constructed using

an IBM Personal Computer-based software program developed by IBM. The program projects the company's financial performance during the next five years.

"We don't have any assurance that projection is accurate; what it is is Value Line's best judgment, and we use that as a point of departure for discussion," Hammoud says. "Often, the customer will say the revenue growth isn't fast enough. They intend to grow faster than that."

Once the model is complete, the market representative compares his customer's profile with those of other companies in the same industry. The representatives analyze this material in a five-day workshop conducted by industry experts within IBM.

The applications portfolio of the company is also examined and compared with what is typical for the industry. Finally, the representative finds business segments within the company in which information systems can make a difference at the bottom line.

Ultimately, the customer receives three to five very specific recommendations about how information systems investments can be made to enhance the business. "The technology we work out later," Hammoud says, "although we do have to make some gross estimates of what is involved in order to feed the cost structure."

Not all customers will implement the recommendations, but the marketing effort is worth it from IBM's point of view, because of the amount of knowledge the marketing representative gains about his customer.

"The better we understand a customer's business, the better we can serve them," Hammoud says.

MICHAEL SULLIVAN-TRAINER

## CUSTOMER

FROM PREVIOUS PAGE

list when it comes to information about product strategy say IBM's new openness is aimed elsewhere.

John Nack of Caterpillar, Inc., in Peoria, Ill., receives a great deal of firsthand information from IBM executives as president of Chicago-based Guide International Corp., an association of users of large-scale IBM computers.

### Coming out of shell

"Guide has always had an open dialogue with IBM. Gradually, it has become more open," Nack says. "Now, they are sharing more openly with other sectors. They are slowly coming out of their shell and delivering better statements of direction."

Likewise, Dale Preston, MIS director for Bristo-Meyers Co., also hears about IBM's product strategies from his marketing representatives.

"We're always pretty much apprised of what's going on," Preston says. "Actually, I think this campaign is for smaller accounts that have not been receiving the attention."

One such account, the SCM Office Supplies Group at SCM Corp. in Marion, Ind., is not finding IBM any more open about products than in the past, but DP Manager Jeff Maloney is receiving better service.

"I've kept my ears open for information about Silverlake, but I only hear things from third-party vendors — nothing from IBM," he says.

However, after months of trying to obtain tuning information for his shop's System/36, Maloney finally received the advice he needed when a new marketing representative was assigned to his account.

Increased presence and more responsive service representatives are the promises that are touching smaller IBM shops.

For example, IBM is making it easier for its marketing representatives in southeastern Michigan and northern Indiana by giving them smaller territories, says Roger Peck, a systems consultant in Bridgeman, Mich., who services System/36 accounts. "IBM's presence in these sites was nonexistent. They're realizing that if they spend more time with their customers, they'll come back [from doing business with third-party vendors]," Peck says.

While IBM is paying more attention to its customers, the firm seems to be less interested in courting users who are pursuing different system strategies than the ones IBM advocates. Echlin, Inc., an automotive parts manufacturer, is converting from an IBM 4381 environment to one based on microcomputers, including Compaq Computer Corp., Compaq 386s and IBM Personal Computer ATs.

The change was spurred by an estimated \$300,000 annual savings the company expects to achieve through reduced hardware and software maintenance costs, according to Richard Hock, MIS director for the firm.

### No interest in us

"IBM has no interest in us," Hock says. "We're getting rid of the baggage of the 370 architecture. I'm not down on IBM, but the 370 architecture leaves a lot to be desired for mid-size customers, and the 9370 is better than what we had."

Despite Echlin's change of strategy, other vendors, including Digital Equipment Corp., Unisys Corp. and Honeywell, Inc., are still trying to sell mainframes into the shop. "Marketing used to be IBM's strength. Now, unless they see daylight, they don't do a good job," Hock says. "I'm amazed. I get much more attention from the other vendors."

IBM's efforts seem to be focused first on improving relationships with MIS managers in its installed base and second on attacking specific competitive situations such as challenging DEC's offerings. Slowly, the company is addressing the myriad of complaints from its current customers.

In a survey of 16 large MIS shops early this year, Charles Mathey of The Futures Group, Inc., in Glastonbury, Conn., found the dominant concern to

be IBM's threats to reduce service and support if a shop installed computers' products. "IBM picked up on customers' concerns about loss of service, and that caused them to start the Year of the Customer," Mathey says. "It is long overdue. It may have more value internally than externally."

For the long term, how well the changes are accepted and carried out by IBM's employees will determine if the company will be a better business partner for MIS.

"I would like to extend the Year of the Customer concept at least through the rest of my career," IBM's Steak says.

## Simplify DBRC... With DBAid

DBAid for DBRC is a menu-driven productivity tool which makes it easy to set up, execute, and maintain recovery procedures for IMS data bases. That's quite an improvement, because the product eliminates the need to learn the complex syntactical structure of up to 44 native DBRC commands. As a result, valuable Data Base Administrator and Operator time is saved and uptime is improved.

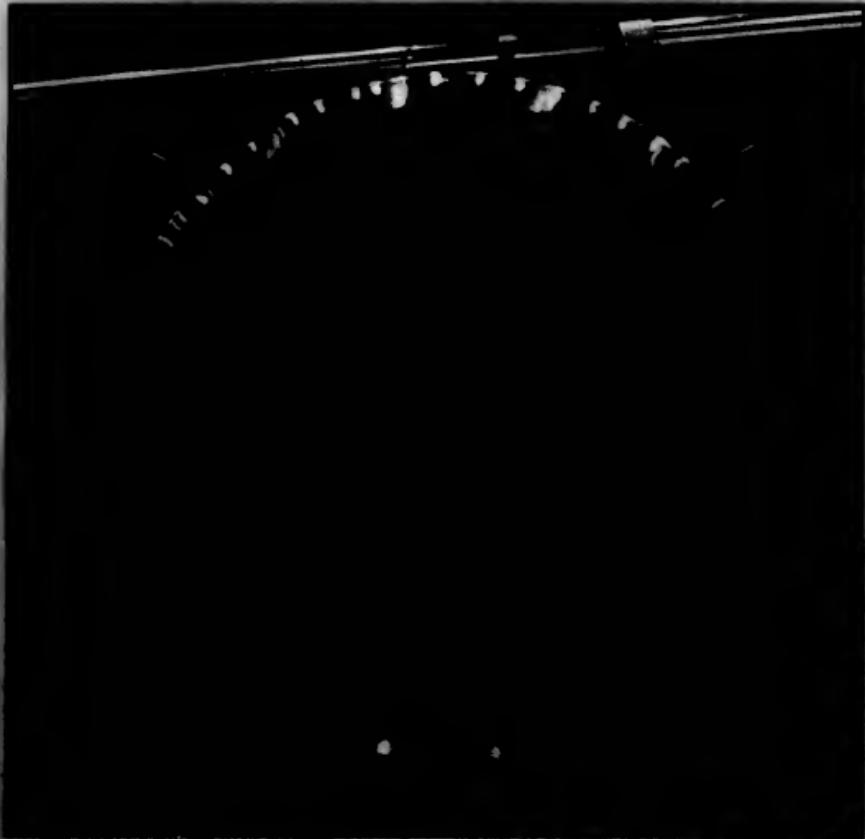
In addition, DBAid for DBRC reads the record data set to extract valid time stamps, sparing you from error-prone analysis of voluminous record listings.

DBAid for DBRC runs under ISPF and supports IMS 1.2, 1.3 and 2.1 in an IMS DB/DC or CICS DL/I environment.

For your 30-day free trial, or for more information, call Alan Kusack today at 212-912-6360. Or write him at Financial Technologies International, Inc., One World Trade Center, 46th Floor, New York, NY 10048.

Circle Reader Service Number 32

# WE HELP BENDIX ELIMINATE JET LAG.



Bendix Engine Division, a division of Bendix Aerospace, is a major manufacturer of jet engine ignition systems and other accessories for commercial and military aircraft.

The division's slogan, "Start With Bendix" appropriately describes the broad range of products Bendix builds on order for more than 700 aerospace customers.

Bendix receives more than 1,000 diversified orders from these customers every month.

To expedite this tremendous volume and eliminate unnecessary lag time between order entry, shipping, and customer verification, Bendix relies on logistics software from Management Science America (MSA). MSA's Order Processing System provides Bendix with better access to data, more timely information, and faster responses to customer needs.

"We can input an order in 30 seconds, ship it the same day and still acknowledge to the customer all in less than a week. Before we had the MSA system, it took three weeks to acknowledge," comments Maria Marino, Bendix's Supervisor of Administration and Planning.

"The MSA Order Processing System has given us everything we wanted," adds Dick Kuhn, MIS and Telecommunications Director. "The system has paid for itself in improved customer service."

Find out how MSA software and expertise can help your company turn lag time into real time. Call Robert Carpenter at (404) 239-2000.

**MSA** The Software Company

Management Science America, Inc.

Circle Reader Service Number 50

# HOW SOON TILL SAA PRODUCTS?

*IBM must demonstrate the technical viability of SAA  
within the next 18 to 24 months  
by delivering an actual SAA package*

BY FRANCIS R. GENs

**S**ystems Application Architecture — SAA — is a promise from IBM to provide the same application environment in its three strategic processor families: the Personal System/2, the 370 and the 3X (the combined System/36 and 38 family that is expected to be announced next year).

IBM is attempting to create this hardware-independent application environment by providing the same programming tools, such as languages and compilers,

data base access language and a dialogue manager; communications services like a network application program interface, terminal-emulation capabilities and physical connectivity options; and a user interface with each of the four "SAA operating systems" — VM, MVS, 3X and OS/2. The list will evolve and increase subject to customer/market demand. For example, IBM will undoubtedly add RPG II to SAA when the new 3X, code-named Silverlake, is announced next year.

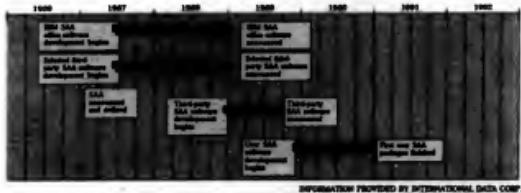
The plan to allow development of applications that can run on every one of IBM's

*Continued on next page*

Gen is vice-president of technology assessments for the financial services group of International Data Corp. in Framingham, Mass.

## SAA TIME LINE

*By the early 1990s, users will be developing SAA packages*



INFORMATION PROVIDED BY INTERNATIONAL DATA CORP.  
CF CRAIG MITCHELL, J. BATES

# CONFORMING TO SAA

IBM must convince customers and third-party software companies to write to the high-level Systems Application Architecture (SAA) interfaces and avoid writing below them, to the operating system or non-SAA subsystems.

Today, there are almost as IBM customers — and, most definitely, so third-party software houses — who write applications only in high-level languages and don't "write down" into lower software layers.

The main reason for this performance. When writing code for a particular function, it is often more efficient to invoke the operating system directly through a supervisor call or to directly access the memory manager — VSAAM, for example — than to utilize lower-level interfaces.

Since SAA attempts to mask the differences in IBM's multiple operating systems by providing common services and interfaces, these interfaces by definition must sit above the operating system and the company's core application software products. SAA, however, aims the developer to large performance benefits of writing down for the benefit of application portability.

Independent software companies like McCormick & Dodge Corp., Coddice Software, Inc., Ashton-Tate Corp., and Lotus Development Corp. must weigh the performance-for-portability trade-off carefully.

For Lotus, the benefit of SAA is being able to sell as SAA versions of 1-3-3 — not only in the case of millions of personal computer users but also to the potential hundreds of thousands of Novelline, or System/390, users, as

ers and the tens of thousands of 370 users — for minimal incremental development cost.

The problem with this strategy is that if a competitor, such as Microsoft Corp., with flood, chooses not to write to the SAA interfaces but chooses, instead, to write more tightly to the PC system software, the package's performance could potentially be superior to that of Lotus's SAA product.

Lotus may be able to sell to a broader market, but the competitor, because of superior product performance, may win in the PC market.

Which approach is more profitable? It depends on which are not very performance-sensitive, the SAA approach carries significant benefits with minimal risk. The question is: How does one group just have performance-sensitive in its market? Is it in financial terms, that is, whether a response time that is one second longer than a competitor's will lose a company its market share?

The point here is that deciding whether or not to write to SAA interfaces isn't a "no-brainer." There is risk if a software vendor's major competitive advantage is to write to SAA.

The risk is similar for a market dominator. Thus, Lotus has decided to write on SAA version of 1-3-3. Its 1-3-3, a version 1-3-3 that will run on 370 processors, is the first independent vendor cut at an SAA product. Many other vendors to "tool and roll" for SAA, however, will play a waiting game, trying to discern whether and when their counterparts will embrace SAA.

Significant competitive risk will likely cause many software vendors to take a cautious stance regarding SAA. **FRANCIS E. GENS**

## HOW SOON?

FROM PREVIOUS PAGE

strategic processor families emerged from a need to address two large problems:

- The inability for customers to leverage their investment in application software for one IBM processor family (such as the Personal Computer) as they migrate to (or add) processors from another IBM family (such as the System/36).

- The inability for IBM to leverage its investment in application software development for its different processor families. Rather than writing an off-line automation package once, for use on all IBM strategic systems, IBM must virtually write five GA packages — one for each of the different operating system environments. Needless to say, this is an expensive way to run a computer company.

This fragmentation of IBM's application software base into four or five sub-communities (the different strategic operating systems) not only costs IBM and its customers money, but also limits IBM's clout in the third-party software community. Firms like Lotus Development Corp. and Ashton-Tate Corp., for example, look at the IBM customer base as only those who own PCs; writing an application for IBM's System/3X base is every bit as large an effort as writing for another vendor's installed base.

If software companies like Lotus and Ashton-Tate — as well as Management Science America, Inc., McCormick & Dodge Corp. and Coddice Software, Inc. — could market essentially the same versions of a package to all IBM customers, it would be even more attractive to write for IBM systems than it is now. This possibility will become more important as Unix and Digital Equipment Corp.'s VMS increasingly challenge IBM's hold on the third-party software community.

The idealized result of SAA is that, by putting an IBM-standard set of SAA services (and interfaces to those services) within VM, MVS, 3X and OS2, these very different operating systems will look virtually identical to the three important entities that interface with IBM's systems, which are as follows:

- Application programmers using the standard SAA programming tools.
- Applications "looking" for the same compilers and data base management systems that recognize SQL calls.
- Users interfacing with SAA applications that are identical in all four operating system environments.

### Hurdles to SAA

If IBM is able to make the SAA services and interfaces identical within all four operating systems (a gargantuan feat of coordination), and if application programmers develop strictly with SAA tools (another very big "if"), the underlying operating system and hardware would be rendered irrelevant to application programmers, applications and users. They would be operating in an "SAA environment," not MVS or VM or OS2.

While SAA sounds like a terrific plan, it will not be implemented without IBM overcoming several major obstacles. The biggest challenges involve the following:

- Technical issues (providing true portability).
- Third-party cooperation (users and independent software developers).
- Alternative schemes for application portability (Unix, for example).

A fourth issue is time. How successful IBM will be with its SAA approach depends to a great extent on how quickly it can overcome the three challenges above.

To succeed — that is, to establish SAA as a major IBM and third-party software environment, as reflected in a large portfolio of SAA applications — IBM must demonstrate the technical viability of SAA within the next 18 to 24 months by delivering an actual SAA package.

### Delivering on the promise

The biggest question about SAA is: Can IBM deliver on its promise of application portability? This question is less about the conceptual concept of SAA than about IBM's ability to coordinate the different systems software teams responsible for VM, MVS, OS2 and the yet-to-be-announced 3X operating systems. The challenge is to ensure that each development team is building the same SAA interfaces.

As it promotes SAA, IBM must also face the fact that it is asking customers and third-party software vendors to avoid writing below SAA to the operating system level — even though that means giving up control. (See story at left.)

It is very likely that the acceptance of SAA as a programming environment in IBM shops will be high, once customers are convinced SAA can deliver on its portability promise. This leads to the next question: When will SAA products (applications that have been written to SAA interfaces with SAA tools) be delivered?

Right now, SAA is merely a plan. This month and last, it became a more clearly defined plan with the release of most of the programmers' reference manuals for the SAA interfaces. During the next year, IBM must release products such as compilers that actually embody the SAA interfaces so that full SAA programming efforts may begin. With those preliminary steps accomplished, IBM, selected software vendors like Lotus, and the rest of the software vendor community and customers will slowly begin to bring SAA applications from plan to reality.

The first developer likely to bring an SAA application to market will be IBM itself. When? The answer lies in Milford, Conn., at IBM's new Application Systems Division (ASD).

At ASD, IBM is, among other things, developing the next generation of its office automation software. This new group of products will replace and/or migrate from IBM's Professional Office System, Personal Services and several other current IBM office products.

The goal is to develop a single group of office products using SAA that run on PS/2s, 3Xs and 370s. This development team will truly put SAA to the test; they are writing the new office software in C on a PS/2. If SAA does not allow that code to also run on a 3X and a 370, the ASD developers will certainly be the first to know.

The ASD developers are targeting 1989 as the introduction point for the new software — between one and two years from now. It's important to remember that no schedules slip so easily as software development time frames; the new software code could conceivably be delayed until 1990. That is the time period in which IBM — which has known about SAA for roughly two years — will deliver its first live SAA code.

When will other software companies introduce SAA applications? At least one **Continued on page 22**

Advertisement

Advertisement

## DATA ENTRY HAS CHANGED

The next generation of on-line data entry software for IBM mainframes lifts the restrictions of all previous data entry systems. Data capture, verification and transfer processes are no longer hindered by limitations of hardware, communications networks or even system availability.

Only KEYMASTER combines the control and data entry of a mainframe-based system with the speed and convenience of the personal computer. KEYMASTER has precisely the features and functionality required to meet the data collection and entry needs of your organization.

For the high volume, centralized data entry operation, this combination of the mainframe and PC eliminates all response time delays and adds even greater productivity and throughput with keystroke verification and editing performed field by field.

MIS managers supporting a distributed approach to data entry gain the simplicity and convenience of the PC, plus all the advantages of an on-line system — without requiring users to be involved with mainframe procedures, programming or communications. The

delivery of data to your mainframe remains under a central control for all applications with extensive editing and verification capabilities. And, every byte of data to the mainframe has a clear audit trail.

The world's leading on-line data entry system is developed and enhanced every year. Objectives include: one data entry function, eliminating errors, cutting keystrokes and increasing overall throughput — without programming!

KEYMASTER provides all the capabilities needed to control, verify and transfer data into your company's information system — including mainframe applications and other PC software.

Find out for yourself. Contact the Data Entry Experts at TSI International, 295 Westport Avenue, Norwalk, Connecticut 06856, (203) 846-2101 and ask for your free presentation diskette and the facts about data entry. Or, call our information operators 800-227-3800, 7:000.

Independent research has confirmed KEYMASTER the leading data entry software system for IBM mainframes. KEYMASTER is owned as largest competitor by almost two to one.

Circle Reader Service Number 34

20

COMPUTERWORLD

NOVEMBER 18, 1987

# HOW DO YOU GET THE MOST FROM THE 9370?

The new IBM® 9370 opens a whole new realm of computing possibilities for your organization. It gives the power of a mainframe at the departmental level...without the personnel or maintenance headaches...and without the high cost. And, it's easily integrated with your mainframe. But, with over 2 million possible customized configurations, choosing the right 9370 options can be a real nightmare. This free booklet from the experts at VM Software, Inc. will help.

#### Topics covered in your free booklet include...

- "Off the shelf" vs. "home grown" software
- 9370 MIPS capabilities
- Comparisons between the various 9370 models
- Guidelines for organizational standards
- Decisions for small vs. large sites
- Integration of the 9370 with a central site
- The VM/IS operating system
- VM/IS vs. VM/SP
- VM/IS SolutionPacs
- Planning for the 9370—a list of recommendations

"The best advice  
I received was in  
this book"

"Don't go departmental  
without reading this first!"

"The wisdom in this book is  
worth thousands of dollars"

#### FREE Booklet Offer

YES! Please send me my free "How Do You Get the Most from the 9370" booklet. I understand that the booklet is completely free of charge and commitment.

Name \_\_\_\_\_

Title \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone(\_\_\_\_\_) \_\_\_\_\_

Or... for faster service—simply telephone  
VM Software at 800-562-7100 (703-264-8000  
in Virginia and outside the continental U.S.).

1-CWX-471118

# HOW SOON?

CONTINUED FROM PAGE 20

independent firm — Lotus — may be close to IBM in announcing an SAA product.

Lotus is a select vendor, having been given access to SAA information before SAA was even announced. There is a good reason for this move: Lotus is a partner with IBM in the development of IBM's new office software. Lotus's 1-2-3 is the spreadsheet IBM will incorporate into its office system. Earlier this year, Lotus referred to its project to develop a version of 1-2-3 that runs on IBM mainframes as "1-2-3/M." Presumably, Lotus's project is based on writing 1-2-3 to IBM's SAA interfaces.

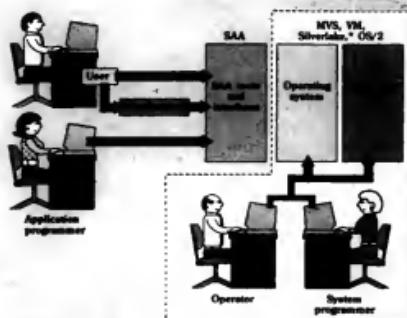
Word from within Lotus is that it may beat IBM to market with its spreadsheet; that is, 1-2-3/M (and likely, 1-2-3/3X) could be introduced in the 1988-1989 time frame.

Lotus is not the only IBM partner in SAA. Microsoft Corp. is playing a role in the development of the SAA Presentation Manager. One of the components of the Presentation Manager, windowing, is based on Microsoft's Windows. Indeed, Microsoft is participating with IBM in the development of the Presentation Manager component of OS/2, which will conform to SAA. It would not be surprising to see Microsoft as one of the first software vendors to jump on the SAA bandwagon with Lotus.

Software companies that do not have a joint development relationship with IBM will be unable to begin developing SAA applications until the SAA reference manuals and tools become generally available. The first such software companies will

## IEWS OF SAA

Various types of users work with different levels of Systems Application Architectures (SAA)



\* IBM's yet-to-be-announced hybrid System/36 and 32 processor

INFORMATION PROVIDED BY INTERNATIONAL DATA CORP. CHART: MITCHELL J. BATES

likely come to market with SAA products in the 1990-1991 time frame.

IBM customers may be more inclined than software vendors to make SAA's performance-for-portability trade-off, but they will not do so until a vendor has demonstrated that SAA is more than vaporware. Therefore, it is likely that customers will wait until IBM or Lotus introduces the first working SAA applications before they begin to play with it. Beginning development of SAA applications

in 1989-1990, early customers will be ready to run SAA code in the 1991-1992 time frame.

It is inevitable that some will quarrel that this time schedule is either too optimistic or too aggressive. The most important point, however, is that regardless of when the first SAA applications arrive from IBM or other vendors and customers, it will take four to seven years before a reasonably rich portfolio of SAA applications becomes available.

The benefits to customers and third-party software companies, if SAA works, are obvious and potentially enormous. The risks are perhaps less obvious but equally as great.

The following are suggestions for how to respond to SAA during the next several years, while it is most spirit of substance:

- While SAA should perhaps be a consideration in a customer's 5-year plan, it should absolutely not be a dominant factor in hardware or software decisions being made in the next year or two.
- While customers should always favor hardware-independent solutions whenever possible, deciding which standards to invest in, and when, will not be completely without risk for SAA. As a hedge, customers should invest in (or program to) only those interfaces that are at the intersection of SAA and Unix (for example, C) or at the intersection of SAA or Unix and international standards (like ANSI SQL).
- Software vendors and their customers need to recognize that SAA will radically change the competitive landscape in the software market. The application portability of SAA will mean that traditional large system vendors like M&D, Culinett, MSA and Hogan Systems, Inc. will now be in direct competition with PC software vendors like Lotus, Microsoft and Ashton-Tate. Blood will be spilled.

The best advice for the next few years is "watch." Watch for whether IBM hits its 1989 target for release of SAA office software. Watch for how quickly IBM partners like Lotus and Hogan come to market with their SAA packages. Watch for how big a performance penalty there is, if any, for writing to the SAA interfaces. Watch how the rest of the independent software community reacts to SAA.

## THE UNIX ALTERNATIVE TO SAA

For application independence from specific hardware platforms, an alternative to Systems Application Architectures (SAA) is Unix.

One of several major differences between Unix and SAA at the moment is their approach to application independence. Unix attempts to provide hardware independence for applications by tying applications into an operating system that is available, in a few variations, on a wide variety of hardware platforms. SAA strives to provide applications with independence from hardware and operating systems; the application environment is isolated from the operating system.

One of the benefits of the Unix approach is that by tying the application more closely to the operating system, the developer probably avoids any performance penalty of having to write strictly to high-level interfaces. The bad news is that structuring the operating system might limit computer companies' freedom to incorporate unique functions into their systems, as in Tandem Computers, Inc.'s "Guideline operating systems" for example.

Another important difference between SAA and Unix is that SAA translators are currently scheduled to be available for Unix customers, whereas no such translators are available for almost every other non-Unix system.

While the availability of third-party SAA application translators is, in fact, not known, one can reasonably assume that Unix might not be limited to the same set of applications as SAA. This would bring the Unix environment closer to the SAA environment.

port for Unix? The answer depends on whether maintaining a proprietary operating system gives enough of a proprietary edge to these vendors.

As planned, SAA interfaces would give vendors access to applications without making them abandon their proprietary operating systems. Unix does not currently allow this.

The situation might change, however, if the attempt to provide a standard application environment for Unix results in an SAA-like environment that is independent of Unix. Unix provides a standard application development environment for IBM's major operating systems. Unix currently does not. This shortcoming is being addressed by X/Open, an international consortium of computer companies attempting to develop an open, international application environment for Unix.

X/Open succeeds in creating an SAA-like application environment. It may well turn out that the Unix application environment does not require Unix under it. If this is the case, the effect that non-Unix computer companies have had in creating a large body of third-party applications while maintaining a proprietary operating system will go away. Unix will be able to incorporate X/Open applications into its own operating system without having to recompile Unix.

An interesting element of this issue is that the X/Open group is headed by IBM's SAA Translators group, which is the group that is developing the SAA application environment.

This group is also developing the application translators.

is no love lost between IBM and the X/Open consortium. There are parallels, however, with IBM's relationship with the International Standards Organization and its Open Systems Interconnection (OSI) networking standards. For many years, IBM's Systems Network Architecture (SNA) and OSI were positioned as rivals. Now, some elements of SNA have been incorporated into OSI, and IBM has stated its intent to make SNA more OSI-like.

All told, the competition between SAA and Unix seems to follow:

• For the near term, Unix will be SAA's closest philosophical rival in that the two share the goal of system independence for applications.

• Mid-term, computer companies making a rich supply of application software will look first at Unix; but in the long term, they will have the option to implement SAA interfaces as well.

• During the next several years, IBM will attempt to have software portability into the SAA fold, ostensibly at the expense of Unix.

• By the early 1990s, the real battle for attracting the attention and commitment of third-party software houses may well be between SAA and the X/Open environment — not Unix and OSI.

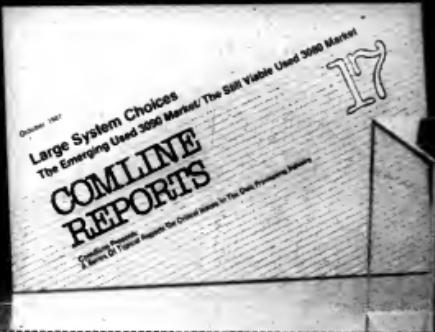
X/Open and SAA are both good technologies. But they will eventually

# If you're considering moving to a 3090, consider a "USED" 3090.

• A Comline Report #17 tells you why you not only how to decrease your budget now, but keep your options in check through the rest of the year. This about potential new 3090 announcements that can have a significant impact on your decision to install a 3090.

Standard 3090 E Model  
with available options  
allow you to sign the 6/15/87  
Agreement designed to help you  
options available to you from IBM.

# 3090



Order your **Comline Reports** today. Simply indicate the issues you wish to receive and mail the coupon. This is a limited offer.

- #2 Contingency Services: The Prelude To A Disaster Recovery Program  
The sensible way to get a disaster recovery program in motion.
- #5 Customer Video/Videotape Programs  
What they are... and how to take advantage of them.
- #12 Networking with 37X5 Front-End Processors  
The 3705 vs. 3725 — which one is best for your environment?
- #13 The 3085 or the 4381-3  
The value of a uniprocessor in an on-line environment.
- #14 Data Center Relocations  
From hardware duplications to physical planning to actual construction.
- #15 Choosing a Leasing Company  
What is remarketing? How critical is it? Can you succeed without it?
- #16 Private Branch Exchange  
A hard look at the Big Three PBX manufacturers.
- #17 Large System Choices  
The Emerging Used 3090 Market/The Still Viable Used 3090 Market.
- #18 The 3380 — Which Model Really Works for You?  
Your choice: A/B/D/E/J or K (future issue)

Comdisco, Inc.  
Attn: Technical Communications  
8400 Shaler Court  
Rosemont, Illinois 60018  
312/696-3000

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_ Phone \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_ CPO/Inst Model/Type \_\_\_\_\_

# comdisco

Circle Reader Service Number 36

DW11/18/87

# THE CASE OF THE RAGING CFO.



What were behind his impossible demands?

**R**ecently, you may have read about "The analyst who knew too much" and the problems he caused his company.

We can still send you a copy of that case story if you missed it. (Just give us a call.) But today, we'd like to share with you the story of another Fortune 500 company and the headaches that the CFO there caused for MIS executives.

It is a story well worth reading. It will help you answer questions your CFO will probably ask you. It could save your company money.

And, if you are like the MIS executive in this story, you may turn out to be a hero.

You will also learn about a new advanced financial software product called FASTAR, which was developed by Corporate Class Software, a subsidiary founded by the \$3 billion Celentco Corporation.

Here's what happened.

The new CFO of a \$2 billion-plus consumer products company had a reputation for toughness that the MIS director soon learned was well deserved.

Within weeks after taking command, the CFO made his demands known. He wanted five years of data available for each division and each product line-up from three years. He wanted faster reports and faster analysis from his staff. And he wanted MIS to arrange for all of this "as soon as possible."

There was only one problem. And the MIS executive knew it. What the CFO wanted was simply impossible to do well without a fourth generation language solution. And the MIS executive had enough experience to know what a fourth generation language solution would mean.

## TRUBLE, TRUBLE, TRUBLE.

There would be hours and hours of expensive programming and maintenance to support a 4GL solution. And financial analysts still would not be able to work readily with their PC-based spreadsheets.

To complicate matters further, different parts of the existing system kept the same financial data in different formats. The cost of maintaining redundant data that could not be easily shared by analysts was running higher and higher.

A team of MIS executives and financial support personnel soon came to a grim conclusion: Several months would be needed to meet the CFO's demands. And the maintenance problem would grow and grow.

What would you have done in their position? As one observer put it: "They knew they had a major problem on their hands."

## A DRAMATIC DISCOVERY.

The solution came from a company called Corporate Class Software.

"The executives at MIS didn't believe us at first," recalls one Corporate Class executive. "And I can't blame them. What we had produced didn't seem like it."

The company had developed a product called FASTAR—Financial Application

Solution to Analysis and Reporting—that was the first packaged solution to advanced financial applications.

No fourth generation languages were needed to perform financial applications. No macros were necessary. And all data could be loaded onto Lotus 1-2-3® spreadsheets for work there. Now, when an analyst compared the cost of a product over five years, it took only minutes, instead of an entire day.

When the decision was made to test FASTAR, the entire system was set up within a week and loaded with a division's worth of data. Now, when an analyst compared the cost of a product over five years, it took only minutes, instead of an entire day.

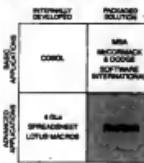
What's more, the CFO now had the flexibility to assign new divisions and product lines to his analysts without taking the time to reprogram the system. FASTAR was built to expand horizontally (for companies) and vertically (for products).

How could all this be done?

## THE PRODUCT THAT ALMOST BEFIEF DESCRIPTION.

FASTAR acts as a bridge between PCs and mainframe financial production systems, such as the general ledger.

But it is more than a bridge. It is a ready-made solution for advanced financial applications that organize data the same way that analysts are used to working with it—by financial schedule (income statements, etc.), by organization entity (divisions, etc.), by period (day, week, month, etc.) and by type (any fourth type of data you choose such as actual, budget or forecast).



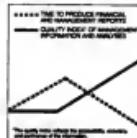
FASTAR is not a tool; it is a ready-made solution for advanced financial applications, including financial consolidation and management reporting.

With the proper clearances, analysts can access financial information from any financial schedule for any company in the corporate structure. And they can consolidate and analyze that information without ad hoc programming. (Our powerful analysis package built in, so there's no fourth generation language or macros programming needed. Even analysts who are computer illiterate can derive the same benefits from FASTAR as anyone else.)

As a result, analysts report more quickly, consolidate more accurately, and analyze more frequently.

One company found, for example, that year-end reports that used to be available in early April, just prior to the annual meeting with shareholders, were now ready in February. And consolidations

that used to take two to three days now took hours—with more accurate content. (One way that we've made con-



solidations more accurate is through a rigorous system of data checks that automatically check data integrity.)

## DRIVING THE NUMBERS BACK WHERE THEY BELONG.

FASTAR also addresses the critical issue of data integrity and control.

Because FASTAR takes all programming of the spreadsheet, there are no undocumented programs to cause costly mistakes. (One analyst in another company had written a 1,000 line macros program before management pulled the plug. He was the analyst who knew too much.)

FASTAR also eliminates the need for passing data back and forth on pieces of paper and having securities or analysts type them into spreadsheets. This reduces the number of potentially dangerous errors that can occur.

And, perhaps most importantly, because all financial information is stored in FASTAR's data base, MIS executives retain control of critical data.

You also protect your company's investment. FASTAR accepts data from fourth generation language products and database management systems, as well as microcomputer applications. (None of the companies using FASTAR needed more than three days to adapt the program to their corporate needs.)

In the final analysis, MIS executives show themselves to be strategic thinkers by giving analysts a tool to be more productive. (Did you know that one company found 85 percent of an analyst's time is spent just looking for data?)

## LET'S TALK.

You can see why financial professionals are interested in FASTAR. And why the chief financial officer of a \$3 billion company would put his reputation on the line to become chairman of our board of directors.

If you'd like more information about FASTAR call 212-719-6209.

**CORPORATE CLASS SOFTWARE INC.**

1211 Avenue of the Americas, 23rd Floor  
New York, NY 10019 (212) 719-4299  
A subsidiary of Celentco Corporation.

# WHAT'S STILL MISSING FROM THE 9370

*Some companies are ordering by the hundreds; others are still assessing their one evaluation unit*

BY ELISABETH HORWITT

**A** year after its debut, IBM's 9370 remains something of a mystery box to MIS managers, who are still trying to figure out how — or whether — it will mesh with their companies' computing strategies.

While some companies are reportedly ordering 9370s by the hundreds, other firms have not gone beyond the first evaluation unit. As one manager put it: "We see the 9370 as a future direction. We can see using it here and there, but we have not yet made a clear commitment."

IBM has been clear enough about the various roles it wants the 9370 to play. Slated to be a key component of IBM's three-tiered distributed computing architecture, the mid-range system will act as the liaison between the vendor's traditional Systems Network Architecture (SNA)-based mainframe hierarchy on one hand and networks of IBM Personal Computers and Personal System/2s on the other.

Within that framework, the 9370 is designed to function in a wide range of roles: as communications gateway, local-area network (LAN) server, data base machine, network management node and liaison to other vendors' systems.

But in order to fulfill these demanding



WARREN GRIFFET

and often interdependent roles, the 9370 needs sophisticated data access and distributed networking capabilities that its parent is just beginning to announce, let alone deliver. Time and patience are therefore necessary commodities for companies that want to design their distributed computing strategies around the 9370 and IBM's evolving peer-to-peer SNA.

IBM, well aware of this need, has let loose a deluge of communications and data management announcements in the grace

*Continued on next page*

Horwitt is a Computerworld senior editor, networking.

## MISSING

FROM PREVIOUS PAGE

period between the system's announcement, in fall 1986, and the first shipments, this past August.

Some of these new products and features were meant to increase the 9370's visibility in one or another of its roles; others

were designed to add flexibility and power to the peer-to-peer SNA framework in which the system will operate.

Last June, for example, IBM announced SNA support for the PU2.1 peer-to-peer networking protocol, a VM version of the Netview network management system and VTAM support for the LU6.2 peer-to-peer software protocol under the VM op-

erating system.

Some IBM customers have shown themselves willing to buy 9370 futures if they have the vendor's assurance that the specific capabilities they want are a finite number of months away. Others, however, have expressed frustration that certain elements of IBM's distributed networking and data base architecture are missing, incomplete

or obtainable only through products that IBM is likely to abandon or change radically in the next year or so.

### Communications gateway

From its inception, the 9370 has incorporated communications hardware features that make it easier than it was with the machine's predecessors to support a wide variety of communica-

tions protocols.

But built into the 9370 is a communications processor that supports several communications subsystems.

This modular design allows users to mix and match communications protocols — including several non-IBM protocols — simply by switching adapter boards.

For example, the telecommunications subsystem supports synchronous data link control (SDLC), bisynchronous, asynchronous or X.25 adapter cards. The LAN subsystem supports both IBM Token-Ring and IEEE

\*\*\*\*\*  
*SOME IBM customers have shown themselves willing to buy 9370 futures if they have the vendor's assurance that the specific capabilities they want are a finite number of months away.*  
\*\*\*\*\*

### 802.3 Ethernet adapter cards.

While IBM 4300 mainframes offer a similar product, called the Integrated Communications Adapter, as an option, they "do not provide the same flexibility of picking exactly what [communications protocols] you want, and they don't have integrated Token-Ring, ASCII or Ethernet connections," says Lon McCauley, a consulting marketing support representative at IBM. For example, an Ethernet interface can be substituted for a Token-Ring interface, or a group of ASCII ports can be replaced by an SDLC or X.25 telecommunications link.

The communications subsystems also make it easier to cost-justify a 9370 as a departmental processor for multiple small remote sites and LANs, since they eliminate the need to install an expensive 3725 or 3720 front-end processor.

The 9370's remote networking features are also designed to fit the budgets of small sites that cannot cost-justify dedicated links to the corporate data center. The mid-range processor is the first 370-like system able to access an SNA network through either multiplexor or dial-up lines.

And unlike 370 hosts, the 9370 can hook up to an X.25 packet-switching network directly through the telecommunications subsystem, rather than through a front-end processor.

"Some of my clients are building X.25 networks [of 9370s]



**COMPUTERWORLD**  
Now in our 20th year!

Reporting  
the future  
since 1967...

Join  
the  
celebration  
and  
save!

JUST 58¢ AN ISSUE  
PLUS 12 BONUS ISSUES

## Fill out and mail in the attached postage-paid envelope.

**YES!** I want to take advantage of this celebration offer: a full year of COMPUTERWORLD and the COMPUTERWORLD FOCUS issues for just \$29.57, a savings of over \$14 off the basic rate.

Payment enclosed       Bill me  
 Charge my credit card       AmEx       VISA       Mastercard

Signature \_\_\_\_\_ Card Expires \_\_\_\_\_

STREET NAME	APT. NO.	LAST NAME
TITLE		
COMPANY		
ADDRESS	STATE	ZIP
City		

Address shown       Home       Office

I'm already a subscriber but I'd like to extend my subscription at this special low rate. (Attach mailing label above.)

Grade: Cent. & South America \$110; Europe \$165; All other countries \$245 (Airmail)  
Foreign orders must be prepaid in U.S. dollars.

Please complete the information to the right to qualify for the special introductory rate.

Please indicate your business, function, and computer involvement below:

1. BUSINESS/INDUSTRY (check one):  
10 Manufacturer (other than computers)  
20 Manufacturing and Processing Trade  
30 Wholesale and Retail Trade  
40 Manufacturing and Processing  
50 Manufacturing and Processing  
60 Government - State/Federal/Local  
70 Manufacturing and Processing  
80 Manufacturing of Computers, Computer-Related  
90 Manufacturing of Electronic Components  
100 Computer & SP Services, including Software Services  
110 Computer & SP Services, including Software Services  
120 Computer/Peripherals/Dealers/Resellers  
130 Other  
140 Vendor/Other  
(Please specify)

2. TITLE/FUNCTION (check one):

15 Vice President, Ass't VP

16 Dir. of Sales, Sales Manager, Sales Mgr

17 Dir. of Mktg., Sales, Dir. of Marketing, Planning

18 Dir. of R&D, Research, Development

19 Dir. of Finances, Controller, Financial Officer

20 Dir. of Engineering, Scientific Research, Engg.

21 Sales Mgr., Sales Rep.

22 Data Processing Manager/Systems Mgr

23 Office Manager

24 Vice President Ass't to the General Mgr

25 Vice President Ass't to the General Mgr

26 Manager, Sales Manager, Sales Mgr

27 Manager, Sales Manager, Sales Mgr

28 Manager, Sales Manager, Sales Mgr

29 Manager, Sales Manager, Sales Mgr

30 Manager, Sales Manager, Sales Mgr

31 Manager, Sales Manager, Sales Mgr

32 Manager, Sales Manager, Sales Mgr

33 Manager, Sales Manager, Sales Mgr

34 Manager, Sales Manager, Sales Mgr

35 Manager, Sales Manager, Sales Mgr

36 Manager, Sales Manager, Sales Mgr

37 Manager, Sales Manager, Sales Mgr

38 Manager, Sales Manager, Sales Mgr

39 Manager, Sales Manager, Sales Mgr

40 Manager, Sales Manager, Sales Mgr

41 Manager, Sales Manager, Sales Mgr

42 Manager, Sales Manager, Sales Mgr

43 Manager, Sales Manager, Sales Mgr

44 Manager, Sales Manager, Sales Mgr

45 Manager, Sales Manager, Sales Mgr

46 Manager, Sales Manager, Sales Mgr

47 Manager, Sales Manager, Sales Mgr

48 Manager, Sales Manager, Sales Mgr

49 Manager, Sales Manager, Sales Mgr

50 Manager, Sales Manager, Sales Mgr

51 Manager, Sales Manager, Sales Mgr

52 Manager, Sales Manager, Sales Mgr

53 Manager, Sales Manager, Sales Mgr

54 Manager, Sales Manager, Sales Mgr

55 Manager, Sales Manager, Sales Mgr

56 Manager, Sales Manager, Sales Mgr

57 Manager, Sales Manager, Sales Mgr

58 Manager, Sales Manager, Sales Mgr

59 Manager, Sales Manager, Sales Mgr

60 Manager, Sales Manager, Sales Mgr

61 Manager, Sales Manager, Sales Mgr

62 Manager, Sales Manager, Sales Mgr

63 Manager, Sales Manager, Sales Mgr

64 Manager, Sales Manager, Sales Mgr

65 Manager, Sales Manager, Sales Mgr

66 Manager, Sales Manager, Sales Mgr

67 Manager, Sales Manager, Sales Mgr

68 Manager, Sales Manager, Sales Mgr

69 Manager, Sales Manager, Sales Mgr

70 Manager, Sales Manager, Sales Mgr

71 Manager, Sales Manager, Sales Mgr

72 Manager, Sales Manager, Sales Mgr

73 Manager, Sales Manager, Sales Mgr

74 Manager, Sales Manager, Sales Mgr

75 Manager, Sales Manager, Sales Mgr

76 Manager, Sales Manager, Sales Mgr

77 Manager, Sales Manager, Sales Mgr

78 Manager, Sales Manager, Sales Mgr

79 Manager, Sales Manager, Sales Mgr

80 Manager, Sales Manager, Sales Mgr

81 Manager, Sales Manager, Sales Mgr

82 Manager, Sales Manager, Sales Mgr

83 Manager, Sales Manager, Sales Mgr

84 Manager, Sales Manager, Sales Mgr

85 Manager, Sales Manager, Sales Mgr

86 Manager, Sales Manager, Sales Mgr

87 Manager, Sales Manager, Sales Mgr

88 Manager, Sales Manager, Sales Mgr

89 Manager, Sales Manager, Sales Mgr

90 Manager, Sales Manager, Sales Mgr

91 Manager, Sales Manager, Sales Mgr

92 Manager, Sales Manager, Sales Mgr

93 Manager, Sales Manager, Sales Mgr

94 Manager, Sales Manager, Sales Mgr

95 Manager, Sales Manager, Sales Mgr

96 Manager, Sales Manager, Sales Mgr

97 Manager, Sales Manager, Sales Mgr

98 Manager, Sales Manager, Sales Mgr

99 Manager, Sales Manager, Sales Mgr

100 Manager, Sales Manager, Sales Mgr

101 Manager, Sales Manager, Sales Mgr

102 Manager, Sales Manager, Sales Mgr

103 Manager, Sales Manager, Sales Mgr

104 Manager, Sales Manager, Sales Mgr

105 Manager, Sales Manager, Sales Mgr

106 Manager, Sales Manager, Sales Mgr

107 Manager, Sales Manager, Sales Mgr

108 Manager, Sales Manager, Sales Mgr

109 Manager, Sales Manager, Sales Mgr

110 Manager, Sales Manager, Sales Mgr

111 Manager, Sales Manager, Sales Mgr

112 Manager, Sales Manager, Sales Mgr

113 Manager, Sales Manager, Sales Mgr

114 Manager, Sales Manager, Sales Mgr

115 Manager, Sales Manager, Sales Mgr

116 Manager, Sales Manager, Sales Mgr

117 Manager, Sales Manager, Sales Mgr

118 Manager, Sales Manager, Sales Mgr

119 Manager, Sales Manager, Sales Mgr

120 Manager, Sales Manager, Sales Mgr

121 Manager, Sales Manager, Sales Mgr

122 Manager, Sales Manager, Sales Mgr

123 Manager, Sales Manager, Sales Mgr

124 Manager, Sales Manager, Sales Mgr

125 Manager, Sales Manager, Sales Mgr

126 Manager, Sales Manager, Sales Mgr

127 Manager, Sales Manager, Sales Mgr

128 Manager, Sales Manager, Sales Mgr

129 Manager, Sales Manager, Sales Mgr

130 Manager, Sales Manager, Sales Mgr

131 Manager, Sales Manager, Sales Mgr

132 Manager, Sales Manager, Sales Mgr

133 Manager, Sales Manager, Sales Mgr

134 Manager, Sales Manager, Sales Mgr

135 Manager, Sales Manager, Sales Mgr

136 Manager, Sales Manager, Sales Mgr

137 Manager, Sales Manager, Sales Mgr

138 Manager, Sales Manager, Sales Mgr

139 Manager, Sales Manager, Sales Mgr

140 Manager, Sales Manager, Sales Mgr

141 Manager, Sales Manager, Sales Mgr

142 Manager, Sales Manager, Sales Mgr

143 Manager, Sales Manager, Sales Mgr

144 Manager, Sales Manager, Sales Mgr

145 Manager, Sales Manager, Sales Mgr

146 Manager, Sales Manager, Sales Mgr

147 Manager, Sales Manager, Sales Mgr

148 Manager, Sales Manager, Sales Mgr

149 Manager, Sales Manager, Sales Mgr

150 Manager, Sales Manager, Sales Mgr

151 Manager, Sales Manager, Sales Mgr

152 Manager, Sales Manager, Sales Mgr

153 Manager, Sales Manager, Sales Mgr

154 Manager, Sales Manager, Sales Mgr

155 Manager, Sales Manager, Sales Mgr

156 Manager, Sales Manager, Sales Mgr

157 Manager, Sales Manager, Sales Mgr

158 Manager, Sales Manager, Sales Mgr

159 Manager, Sales Manager, Sales Mgr

160 Manager, Sales Manager, Sales Mgr

161 Manager, Sales Manager, Sales Mgr

162 Manager, Sales Manager, Sales Mgr

163 Manager, Sales Manager, Sales Mgr

164 Manager, Sales Manager, Sales Mgr

165 Manager, Sales Manager, Sales Mgr

166 Manager, Sales Manager, Sales Mgr

167 Manager, Sales Manager, Sales Mgr

168 Manager, Sales Manager, Sales Mgr

169 Manager, Sales Manager, Sales Mgr

170 Manager, Sales Manager, Sales Mgr

171 Manager, Sales Manager, Sales Mgr

172 Manager, Sales Manager, Sales Mgr

173 Manager, Sales Manager, Sales Mgr

174 Manager, Sales Manager, Sales Mgr

175 Manager, Sales Manager, Sales Mgr

176 Manager, Sales Manager, Sales Mgr

177 Manager, Sales Manager, Sales Mgr

178 Manager, Sales Manager, Sales Mgr

179 Manager, Sales Manager, Sales Mgr

180 Manager, Sales Manager, Sales Mgr

181 Manager, Sales Manager, Sales Mgr

182 Manager, Sales Manager, Sales Mgr

183 Manager, Sales Manager, Sales Mgr

184 Manager, Sales Manager, Sales Mgr

185 Manager, Sales Manager, Sales Mgr

186 Manager, Sales Manager, Sales Mgr

187 Manager, Sales Manager, Sales Mgr

188 Manager, Sales Manager, Sales Mgr

189 Manager, Sales Manager, Sales Mgr

190 Manager, Sales Manager, Sales Mgr

191 Manager, Sales Manager, Sales Mgr

192 Manager, Sales Manager, Sales Mgr

193 Manager, Sales Manager, Sales Mgr

194 Manager, Sales Manager, Sales Mgr

195 Manager, Sales Manager, Sales Mgr

196 Manager, Sales Manager, Sales Mgr

197 Manager, Sales Manager, Sales Mgr

198 Manager, Sales Manager, Sales Mgr

199 Manager, Sales Manager, Sales Mgr

200 Manager, Sales Manager, Sales Mgr

201 Manager, Sales Manager, Sales Mgr

202 Manager, Sales Manager, Sales Mgr

203 Manager, Sales Manager, Sales Mgr

204 Manager, Sales Manager, Sales Mgr

205 Manager, Sales Manager, Sales Mgr

206 Manager, Sales Manager, Sales Mgr

207 Manager, Sales Manager, Sales Mgr

208 Manager, Sales Manager, Sales Mgr

209 Manager, Sales Manager, Sales Mgr

210 Manager, Sales Manager, Sales Mgr

211 Manager, Sales Manager, Sales Mgr

212 Manager, Sales Manager, Sales Mgr

213 Manager, Sales Manager, Sales Mgr

214 Manager, Sales Manager, Sales Mgr

215 Manager, Sales Manager, Sales Mgr

216 Manager, Sales Manager, Sales Mgr

217 Manager, Sales Manager, Sales Mgr

218 Manager, Sales Manager, Sales Mgr

219 Manager, Sales Manager, Sales Mgr

220 Manager, Sales Manager, Sales Mgr

221 Manager, Sales Manager, Sales Mgr

222 Manager, Sales Manager, Sales Mgr

223 Manager, Sales Manager, Sales Mgr

224 Manager, Sales Manager, Sales Mgr

225 Manager, Sales Manager, Sales Mgr

226 Manager, Sales Manager, Sales Mgr

227 Manager, Sales Manager, Sales Mgr

228 Manager, Sales Manager, Sales Mgr

229 Manager, Sales Manager, Sales Mgr

230 Manager, Sales Manager, Sales Mgr

231 Manager, Sales Manager, Sales Mgr

232 Manager, Sales Manager, Sales Mgr

233 Manager, Sales Manager, Sales Mgr

234 Manager, Sales Manager, Sales Mgr

235 Manager, Sales Manager, Sales Mgr

236 Manager, Sales Manager, Sales Mgr

237 Manager, Sales Manager, Sales Mgr

238 Manager, Sales Manager, Sales Mgr

239 Manager, Sales Manager, Sales Mgr

240 Manager, Sales Manager, Sales Mgr

241 Manager, Sales Manager, Sales Mgr

242 Manager, Sales Manager, Sales Mgr

243 Manager, Sales Manager, Sales Mgr

244 Manager, Sales Manager, Sales Mgr

245 Manager, Sales Manager, Sales Mgr

246 Manager, Sales Manager, Sales Mgr

247 Manager, Sales Manager, Sales Mgr

248 Manager, Sales Manager, Sales Mgr

249 Manager, Sales Manager, Sales Mgr

250 Manager, Sales Manager, Sales Mgr

251 Manager, Sales Manager, Sales Mgr

252 Manager, Sales Manager, Sales Mgr

253 Manager, Sales Manager, Sales Mgr

254 Manager, Sales Manager, Sales Mgr

255 Manager, Sales Manager, Sales Mgr

256 Manager, Sales Manager, Sales Mgr

257 Manager, Sales Manager, Sales Mgr

258 Manager, Sales Manager, Sales Mgr

259 Manager, Sales Manager, Sales Mgr

260 Manager, Sales Manager, Sales Mgr

261 Manager, Sales Manager, Sales Mgr

262 Manager, Sales Manager, Sales Mgr

263 Manager, Sales Manager, Sales Mgr

264 Manager, Sales Manager, Sales Mgr

265 Manager, Sales Manager, Sales Mgr

266 Manager, Sales Manager, Sales Mgr

that handle DEC, Data General, and weird third-party equipment," says Frank Dunbeck, president of the Washington, D.C., consulting firm Communications Network Architects, Inc. "The 9370 can handle all of the asynchronous stuff at the same time it handles IBM bisynchronous and SDLC traffic, so you can [use it as an electronic mail system], offloading it from the mainframe where it has been eating up cycles and storage."

#### Operational office node

The vice-president of one financial institution spoke for many users recently when he said, "Where you need one expert to solve a problem on a DEC system, you need four experts for an IBM system." IBM last June announced several products designed to dispel this common user impression and to make the 9370 a formidable competitor against Digital Equipment Corp. in the office system market.

IBM began by introducing a new version of VM, called VM/32, that is said to make installation and problem management far easier for 9370 users. In her role as host for the June 16 announcements, Ellen Hancock, president of IBM's Communications Products Division, said a 9370 VM/32 system can be installed in less than half a day.

IBM also announced an enhanced VM Netview, a version of IBM's network management system that allows the 9370 to collect network alerts and other diagnostic data from a local network and upload it automatically to a central 370 running full-featured Netview. VM Netview also eliminates "the majority of routine operator tasks" that exist on a 370, Hancock said.

Once the system is installed, remote management and configuration can be performed by the 9370's Netview Version II interacting with Netview on a remote 370 host. A 9370 running Netview can be programmed to respond auto-

## IBM's 9370 SOFTWARE

*The company's 9370 subsystems work with some, but not all, of IBM's operating environments*

9370		VM	VSAM	IMS/VS	MVS
Subsystems	VM	VSAM	VSAM	No	No
Telecommunications	VM	VSAM	VSAM	No	No
File Systems	ESCS	TSAP	VSAM	No	No
Printers	PSF	TSAP	VSAM	No	No
Networks	TCP/IP	VSAM	VSAM	No	No
System	VM	VSAM	VSAM	Yes	No
Transmission Control Protocol/Internet Protocol					

INFORMATION PROVIDED BY IBM

matically to messages it receives from the local network; for example, alarms when network traffic or error rates pass a preset limit or when a local terminal or network interface fails.

Alternatively, Netview II can pass messages on to the central host for storage, analysis or human intervention. Netview II collects network alerts from an IBM Token-Ring by interacting with the LAN Manager through Netview/PC.

It should be noted, however, that IBM provides little in the way of packaged applications that collect and process specific types of network data through the 9370. It is the in-house programmer's responsibility to develop them, using IBM Command-Lists.

#### Network server

A 9370 running Netview can be initialised, started up or turned off from a remote system and will announce its presence to the network to a remote host as soon as it is turned on.

Once the 9370 is installed and Netview utilities are in place to ensure the continued operation of its network, the question arises as to how local workstations will be able to access the departmental processor, not only as a local server but also as a liaison to resources on the corporate network.

IBM provides a variety of ways for workstations on a LAN to communicate with a 9370. IBM PCs emulating 3270 terminals can access data, applications and peripherals on VM and MVS/32 hosts using IBM's Enhanced Connectivity Facility.

PCs, PS/2s and non-IBM workstations can access data, applications and peripherals on a 9370-based LAN server through two different peer-to-peer networking proto-

cols: IBM's LU6.2 and the de facto networking standard, Transmission Control Protocol/Internet Protocol (TCP/IP).

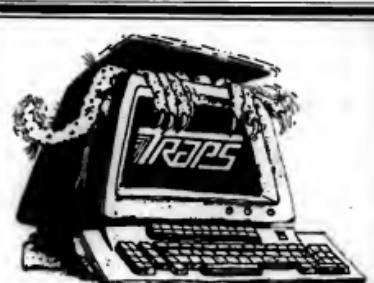
While IBM may support TCP/IP and Ethernet as a concession to manufacturing, engineering and research and development firms that use the protocols extensively, LU6.2 is clearly the vendor's preferred access method for its mainstream systems, including the 9370. Most major computer vendors now support IBM's peer-to-peer protocol, and some IBM observers are standardizing around LU6.2 as a way to link all of their computers — not just IBM's. This summer, IBM opened the way between the 9370 and other LU6.2 devices by announcing VM/VSAM support for the protocol. MVS and VSE support was announced as well.

#### Distributed data base node

If the 9370's connectivity architecture is versatile, its data access function remains mucky, reflecting a general confusion in IBM's distributed data base strategy.

The vendor has hinted at the coming of a uniform software architecture that will allow data base objects to reside on whatever system best suits a given application or user environment, which could be the 9370, 370, PS/2, System/36 or whatever.

Continued on next page



## Stop software surprises. Start testing with TRAPS™.

Somehow, a little programming change can take on monstrous proportions if you're not careful. And an undetected error can make a program look like a different animal altogether.

That's why we've developed TRAPS (Testing/Recording and Playback System) to detect unwanted surprises in your software before they cause trouble for your users.

With TRAPS, you can build and maintain test cases in multiple on-line environments — from CICS and TSO to IMS and DB2. TRAPS captures keystrokes and screens and provides consistent, repeatable playback of test scripts. And since TRAPS runs on a personal computer, you conserve host resources and bypass the installation and scheduling roadblocks of mainframe testing tools. When you test with TRAPS, you get a high-quality product the first time around. And you won't leave users in the dark with unexpected surprises.

For more information on TRAPS or our other innovative software products, contact TRAVTECH at (203) 277-5995.



One of The Travers Companies  
One Tower Square  
Hartford, Connecticut 06163

Circle Reader Service Number 38

### NEW FOR SQL/DS USERS

## TOOLS TO EXPLOIT THE POWER OF SQL/DS

#### VMSQL/REPORT

A sophisticated SQL/DS report writer for complex reports such as invoices, form letters, mailing labels and more.

#### VMSQL/EDIT

The full-function table editor that provides full-screen editing for multiple rows of data from multiple tables now comes with full data validation, cursor-based screen painting, improved full-screen query and more. Call 800-548-7100 to save on these SQL/DS power tools.

Now for a limited time, we're offering special pricing on all VMSQL products.

#### APPLIED RELATIONAL TECHNOLOGY

A Division of VM Software, Inc., 1900 Alexander Bell Dr., Boston, MA 02261 (781) 264-8000

Circle Reader Service Number 38

1-CWX-871118

# WHAT'S MISSING

FROM PREVIOUS PAGE

the customer chooses.

A distributed relational data base management system, R Star, is reportedly in the works, but its introduction date remains hypothetical. Meanwhile, IBM has announced a number of data management and data access products whose part in IBM's future distributed architecture remains unclear.

"My sense is that IBM has become much more open about what it wants to do, filling in the pieces of its SNA and SAA [Systems Application Architecture] and even tying them together," says Michael Radick, director of planning and development for the New York State Department of Education.

The department is evaluating the 9370 as a departmental processor for district buildings and libraries around the state but is still trying to get a handle on "all of the recent changes IBM has made to SNA and all of the pieces that are still floating around," Radick says.

The following are among the more important pieces:

- **Distributed Data Manager (DDM)** is an "architecture" — as opposed to a product — that lays out uniform specifications for software that would provide data access across multiple systems while taking care of incompatibilities among disparate IBM data base management structures, storage systems and communications protocols. DDM supports LU6.2 but

does not yet bear the SAA stamp of approval, which would assure its place in IBM's mainstream distributed DBMS architecture.

Currently, DDM does not provide the same capabilities for all IBM systems.

IBM 370s, and therefore 9370s, with the vendor's Customer Information Control System/OS/VS can be "target" nodes (that is, their applications and data can be accessible to other systems) but not "source" nodes, whose applications can access other systems' resources. IBM PCs can ask for data but cannot provide it to others. Only System/36s and 38s can act as both target and source nodes.

**Shoeboaring** the 9370 into a traditional hierarchical setup prevents users from setting up a DDM-based distributed system in which data requests are passed back and forth among multiple 9370s.

- **Transparent Services Access Facility (TSAF)** allows CMS applications to access remote resources (SQL data bases, for example) across a cluster of up to eight 9370s. While IBM recently provided SNA LU6.2 support for TSAF, it is not yet part of SAA. Communications Network Architects does not currently

recommend that its clients install TSAF because, Duoback says, the software will not become part of IBM's DDM architecture.

"We are looking for DDM to be the total solution of the future" when it comes to providing users with data base access across different-size IBM hosts, Duoback says. TSAF, he explains, is IBM's short-term solution for the 9370 in the absence of a complete DDM product. IBM will not comment directly on TSAF's future or lack of one.

- **Enhanced Connectivity Facility (ECF)** is a micro-to-mainframe link that allows IBM Personal Computers to access applications, files and peripherals on 370 hosts. Although IBM has not yet implemented ECF, it has indicated its intention to do so in selected environments. ECF was recently made a part of SAA. IBM is also working on ways to connect ECF with DDM, a spokesman indicates.

- **Advanced Peer-to-Peer Network (APPN)**, like TSAF, provides a way for a user to access data across multiple departmental processors — in this case System/36s. However, APPN is not limited

to eight nodes as TSAF is. Moreover, APPN provides some network resource management tools that are lacking in TSAF and in IBM's traditional SNA networking scheme.

APPN's directory feature keeps track of computing, data, peripheral and workstation resources across multiple System/36s so that a user query sent to one System/36 can get routed from one system to another until it gets to the right node. System/36s running APPN communicate with one another regularly. This allows them to update directories as resources and nodes are added, deleted and altered and to reroute queries around failed links.

While APPN currently provides these capabilities for System/36s only, IBM clearly recognizes that certain APPN features, such as nodal self-definition and dynamic reconfiguration of topological and directory flows, are key components of a distributed computing system.

The vendor is currently learning about user needs in these areas from its APPN sites, according to Donald Haile, director of business and systems management at IBM's programming laboratory in Raleigh, N.C.

Whether or not IBM decides to provide 9370 distributed networking capabilities — through either APPN or a similar product — the system will need peer-to-peer networking capabilities. Conspicuous by its absence right now is direct 9370 support for PU2.1. Last June, IBM announced PU2.1 support for 3725 and 3720 front-end processors, opening the

way for 9370s equipped with front-end processors to act as pass-through nodes for PU2.1 devices. The 9370's Integrated Communications Adapter still cannot support PU2.1 communications.

Additionally, the 9370's tendency to behave like a 370 — that is, as an entire SNA subarea — prevents users from linking more than 255 9370s on an SNA network. This is a problem for customers like the New York State Department of Education, which is thinking about networking several hundred 9370s.

IBM's way around the problem is to use SNA Network Interconnection to link multiple SNA networks. This would allow users to make changes to a network of 9370s without affecting the SNA backbone network, IBM says. Some users and consultants say that SNA Network Interconnection becomes inefficient when there is frequent communication between nodes on disparate networks.

IBM announced dynamic SNA network reconfiguration, the ability to add or delete SNA devices without having to take the entire network down. But that will only be available through two currently unavailable products: the new version of ACF/VTAM, announced last June and scheduled for shipping in the second half of this year, and a new or substantially revised Network Control Program, which has not yet been officially announced but will be introduced in time to make the ACF/VTAM deadline, IBM says. The revised Network Control Program is also needed to support PU2.1 on IBM front-end processors.

## TRYING THE THREE-TIER STRATEGY

**W**hile some of its major competitors are racing to install new IBM distributed computing products as soon as they appear, CM Alliance Cos. has taken a wait-and-see attitude toward the vendor's new three-tier architecture.

Eventually, the Hartford, Conn.-based insurance group hopes to install 9370s throughout its agencies as a network server and communications gateway to corporate hosts. But right now, the firm cannot cost-justify "putting a minicomputer between the PC and the mainframe, despite the fact that peer companies are doing it," says Thomas Murray Jr., assistant vice-president of data processing.

CM Alliance is planning during the next year to install IBM Personal Computer local-area networks (LAN) and servers from Banyan Systems, Inc. as a short-term solution for agencies that want to share data and peripherals. Meanwhile, the firm will evaluate one or two 9370 installations from a technical point of view and explore various distributed applications that might justify wider implementation, Murray says.

The firm envisions using 9370s in a variety of roles. As servers, they would provide networked personal computers with file, application and peripheral sharing via IBM's Enhanced Connectivity Facility. The departmental processor would also give PCs access to Professional Office Systems (Profs) services, including a corporate electronic mail network. "Electronic document distribution is very important to us as a way to stop moving paper and disks between desks," Murray says.

Later, CM Alliance plans to use 9370s as local processors for the Applied Data Research, Inc. (ADRI) Datcom/DB data base management system, which recently became CM Alliance's standard DBMS. "You can have a shared data base on

a LAN server, but PC LAN-based DBMSs, while they have made great strides, don't yet equal main DBMSs," Murray says. Currently, the company uses Datcom/DB on its MVS systems and is waiting for ADRI to port the software to VM/SP in order to mesh the DBMS packages with Profs.

As it makes its 9370 plans, CM Alliance is keeping in mind that LAN servers, particularly IBM's Personal System/2 workstations, may become at least as functional as minicomputers in a distributed processing environment.

"We're not sure LANs won't develop fast," Murray says, "to take a chunk of the minicomputer data base down to the agency, to refresh on the server and even have updates come back. Even DEC and Wang might do the same themselves but not with an IBM host."

The company chose the 9370 after looking at Digital Equipment Corp., Wang Laboratories, Inc. and Data General Corp. departmental processing solutions. "It satisfies our communications and PC-to-host connectivity needs," says director Bill Burrows.

Although CM Alliance was impressed with DEC's All-in-1 office automation system, the company was put off by the necessity of setting up Systems Network Architecture gateways between IBM hosts and DEC systems. "We are an IBM shop," Murray says. "DEC suggested that we distribute our minicomputer software on their systems, but we could find no one in our company to champion the migration of 15 years of on-line application development [on IBM minicomputers]."

While CM Alliance is considering a distributed computing approach, "using DEC would force us to do it all at once," Murray says. In contrast, the 9370 will allow the firm to distribute applications gradually.

ELIZABETH BORWITT

## Control the variables and enhance the power in your 3270 network.

Your 3270 environment is changing, encompassing intelligent as well as non-intelligent devices. To achieve the degree of connectivity and enhanced capabilities you need, you've got to have a control unit that's more powerful and flexible. You need a Telex control unit.

With a Telex controller, you can connect LANs, ASCII hosts and devices, 3270 products, intelligent workstations and more. You can even add windowing and multi-session -

capability to low-end IBM and compatible terminals.

Compatibility, flexibility and capability — these are the hallmarks of a Telex control unit. Telex helps you protect your past investment in hardware while you evolve with the new 3270 technologies. For more information about controlling the variables in your 3270 network, call

Telex USA: 1-800-331-2623, ext. 4530  
(Oklahoma, 1-918-624-4530). CANADA: 1-800-268-3233.  
WORLD TRADE: 1-617-769-8000.



**TELEX**  
TELEX COMPUTER PRODUCTS, INC.

Circle Reader Service Number 41

## ► VENDOR VIEWPOINTS ◄

## THE REAL VAX KILLER

BY ROBERT COOK

**I**BM has a VAX killer, but it's not the 9370. The real VAX killer is the 370 architecture, providing compatibility between machines and software at all levels of the organization. The new 9370 Information System is

getting the attention generally associated with new IBM machines. IBM is calling it the "superminimainframe," while the press and others are taking a bolder approach, with labels ranging from the "mainframe in a file cabinet" to the oft-repeated "VAX killer."

The 9370 was the missing link in what

is now a "seamless" approach to distributed processing, which, in combination with the VM operating system, represents a new and clearly articulated strategic direction for IBM.

**Just how 'operatorless' are they?**  
This approach will significantly affect corporate information management and its associated functions. Though 9370s in the departmental setting are being positioned as essentially "operatorless," the data

center must play a key role in implementation.

The data center is essentially the arm of the MIS department that serves as the keeper of the hardware, which traditionally has meant a large mainframe from which resources were doled out to competing groups of users.

While having to squeeze the last drop of horsepower in servicing the dynamic needs of the organization has been no easy task, it has brought the data center some control as guardian of critical information resources.

**Work group independence**  
The 9370 changes the picture. Based on 370 architecture, this mid-range machine is an important step toward distributing

*IBM 3270 and System/34/36/38 Users:*

# 100% IBM 4224 Compatible!

*Now you have an alternative — the 7224 from Interface Systems.*

### Full IPDS/APF Support

The push-compatible ISI 7224 prints everything an IBM 4224 can print . . . and more. Speeds reach 400 cps draft, 200 cps DP Text, and 100 cps NLQ. You can also print graphics and labels using IPDS or APF. Output can be in black or up to eight colors.

### 3 Forms-Handling Options in 1

The ISI 7224's standard "push" tractors handle continuous, demand-document, and single-sheet forms — yet don't require change-tractors for each. Automatic paper loading/parking saves time and trouble. Bottom-feed

plus optional "pull" tractors provide a straight path for staff forms.

### No Need to Waste Forms

The ISI 7224 provides no-waste demand-document tear-off. Forms can have up to six parts.

### No Box! Just Plug It and Print

Fully integrated, the ISI 7224 connects directly to IBM 3174/3274/3276 controllers or S/3X bimodal cable. It can replace IBM's 5287, 5296, and 4214 printers, plus others, in addition to the 4224. An enhanced 4224-compatible control panel and two-line, 52-character LCD make operation easy.

### Low Noise, Low Profile, Low Price

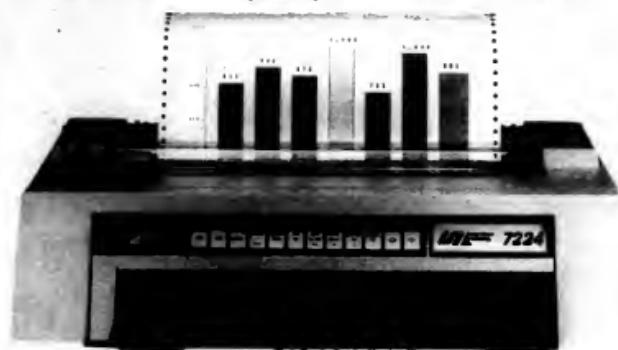
The ISI 7224 prints at 43.7 dB(A) quieter than the 4224. And since it's only seven inches tall, it fits tighter spaces. Extra features and all, it costs significantly less.

### 1-800-544-4072

Call today for more information (in Michigan, 313-789-1000. Or write to us at 5655 Interface Drive, Ann Arbor, MI 48103. Telex: 610-225-8058.



**Interface Systems, Inc.**  
Problem-Solving Printers for IBM Systems



compromising data integrity and security will require networking from the central site. It will be essential that the data center understand how to coordinate this in order to ensure that organizational standards and users' needs are met.

Distributed processing with 9370s reduces much of the demand on the central mainframe by off-loading specific applications to the individual departments themselves. The accounts payable system, for example, goes into the finance department. The data center is going to need to work with users groups in choosing software that will work well on 9370s while also fitting into the total picture of the organization's distribution of resources. Again, technical considerations must be tempered by the needs of the users.

## CHANGING DIRECTION

BY JAN LINDELOW

The challenge facing information systems suppliers today is not so much adapting to what IBM is doing as it is adapting to what the marketplace and users are demanding.

Decision makers and end users are realizing that the quality and efficiency of their information systems are crucial to their competitive success and profitability. This realization has started to prompt users and suppliers to build new relationships that are closer as well as more productive.

The key for suppliers is to understand the user's business thoroughly enough to know how, when, where and why information is essential to his company's success.

### The partnership approach

Many suppliers, IBM and Unisys Corp. among them, are implementing a "partnership" approach that focuses on serving specific markets.

Users are also asking for "bridges" of different kinds across a range of workstations and mid-range and mainframe systems.

IBM is trying to address this request through providing more compatibility across its operating systems and through its Systems Application Architecture.

Unisys also sees this need. The broad span of continuity among the company's systems allows users to start with an A series processor and increase the system's capabilities by more than 100 times without changing operating systems or reprogramming.

### Where the value lies

The marketplace today appears to be putting the greatest value on what a supplier can do to help users solve specific problems and become more competitive.

The computer industry as a whole is feeling the pressure and is headed toward solving, once and for all, the intricacies of compatibility.

Perhaps because IBM has for so long been the band at the head of the parade, it is taking it a while to recognize that the parade has changed direction.

Linde low is senior vice-president of Unisys Corp. in Blue Bell, Pa.

**OWNERSHIP implies control, and the distribution of 9370s into the departments may be an implied threat to the controlling role of central MIS and the data center.**

A major thrust of IBM's mid-range strategy is the open-systems environment, with departmental machines being relatively self-maintaining, which means that technical staffing is not required in remote sites.

The data center's central coordination will be critical as it becomes the overseer of the machines in the remote sites — as

well as the troubleshooter when problems do occur.

### The missing link

Careful planning in choosing 9370 machine sizes and software will be a necessary consideration in maintaining overall efficiency.

In addition, system software with ca-

abilities specific to the VM/9370 environment will provide the missing link in the overall strategy, keeping machines running at their optimum levels, reporting overall performance statistics and exceptions to the data center and, through options that can be tailored to individual situations, enforcing the standards of the data center throughout the organization.

The 9370 will enable the efficient distribution of information resources throughout the organization, from the top down, all within the framework of the 370 architecture. True office automation has arrived, not surprisingly, in IBM's Year of the Customer.

Cost is chairman and chief executive officer of VM Software, Inc. in Reston, Va.

## The best MIS solution for human resources and payroll isn't software.



### It's a service.

Before you commit a major amount of people and money to payroll and personnel software such as ISI, MSA, M&D or the others, we suggest you invest a small amount of time to investigate the better solution, ADP.

#### Service vs. Software.

We're the service solution to payroll and personnel automation and we're a lot more cost effective and flexible than you might think. Because while the cost of doing payroll in-house may seem to end with the cost of the software, in fact it is only the beginning.

#### The Hidden Costs of Doing It Yourself.

There's the hidden costs of maintaining and updating your current system. The time your people have to spend meeting the reporting needs of payroll and personnel. And the considerable burden on your computer and personnel resources for these non-strategic applications.

Which is why we think you'll find that the most cost-efficient, flexible, and accurate way to handle payroll processing and human resources reporting isn't with your computers and personnel resources—it's with ours.

#### Integration and Flexibility.

We're the nation's largest personnel/payroll service organization. And we can fully integrate all human resources and payroll data for convenient access and timely reporting, whether you're in a centralized or decentralized environment. All the while sparing you the hassle, lead time and pressures involved in getting and keeping a software system up and running.

#### We're at Your Service.

That's why, when it comes to certain MIS problems, the best solution isn't software, it's a service. The kind of

service you can only get from ADP's National Accounts Division, which provides personnel/payroll services to the Fortune 1000.

Find out more about how our services can help you. Call 1 800 441-1513.

I want to find out more about ADP's National Accounts Division's services.		
First Name	Last Name	
Title	Telephone Number	
Company		
Address		
City	State	Zip Code
No. of employees (maximum _____ employees)		
Do you use an IBM CPC/CPAC, AT/XT/PC, AT/Other		
ADP client? Yes/No/Don't know		
Marital Status: Single/Married/Divorced/Other		
Employment Status: Full-time/Part-time/Other		



We bring personnel and payroll together.

Circle Reader Service Number 54

# ONE-STOP SOFTWARE SHOPPING

*IBM will become to customers  
a sort of software supermarket or department store*

BY STANLEY GIBSON

**O**n July 22, a tremor shook the software world as IBM's Application Systems Division (ASD) appeared. Four months later, that new formation is still giving rise to vibrations and aftershocks; the final shape of both ASD and the surrounding landscape remains unclear.

But few believe the software business will ever be the same.

"The goal is to develop and deliver application software that leverages IBM hardware," says ASD President Joseph Guglielmi. The ASD business plan calls for generating both software and hardware revenue as well as profit.

ASD, as its name indicates, is focused on application software and does not include operating system software, which is still handled by the various IBM hardware divisions. In addition, IBM's DB2 operations remain a separate entity and are not grouped under ASD.

Although ASD represents a reshuffling of some previously existing units and is organizationally similar to other IBM business groups, Guglielmi stresses that his division is organized like a classical business, headed by himself as its entrepreneurial president. Within IBM, Guglielmi reports

to Edward Luente, a vice-president and head of the Information Systems Group.

ASD's job is to see that IBM writes all the software it can and gets others to write what it cannot. In the process, IBM will press both itself and others to standardize software characteristics by forming to its Systems Application Architecture (SAA).

The result is hoped to be a great number of software packages that will be portable to a number of different IBM processors, thus maximizing software's benefits to IBM hardware sales.

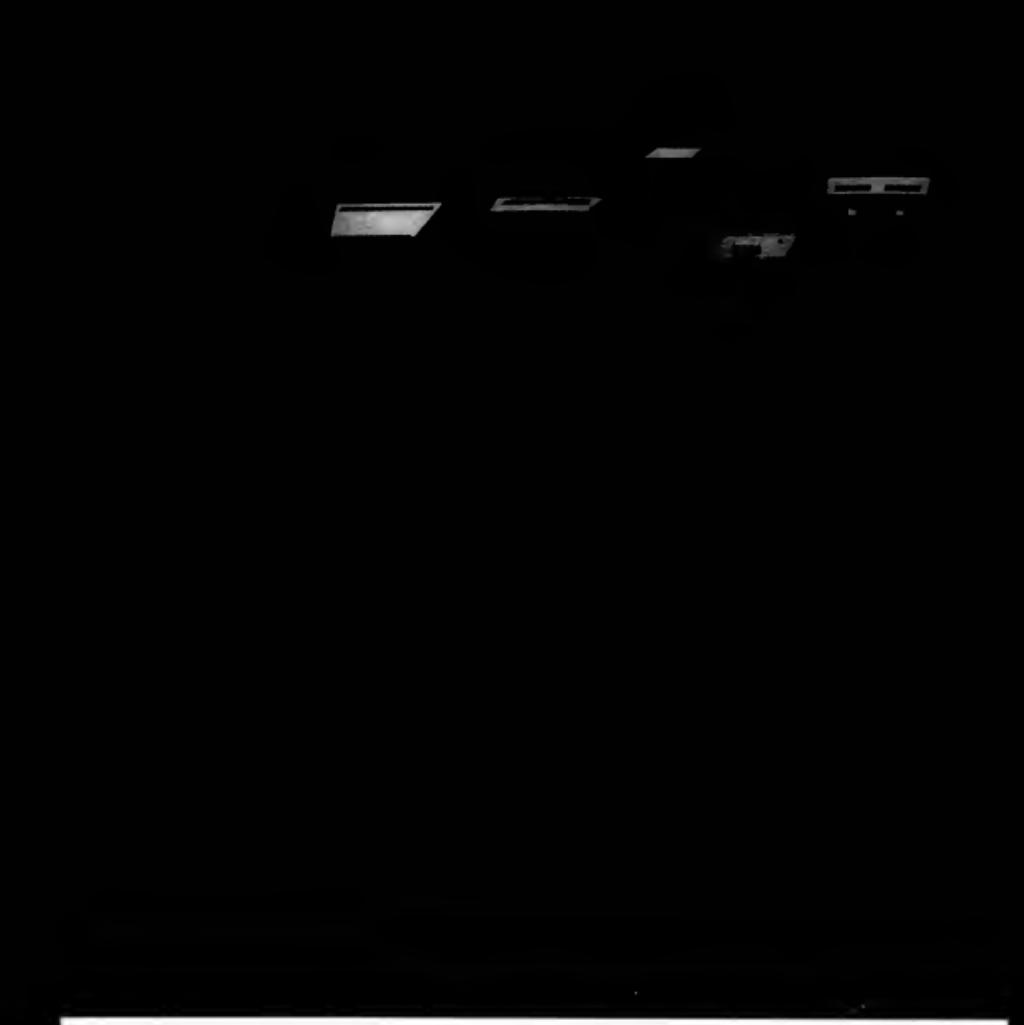
And IBM wants to sell this software itself to a greater degree than ever before, gaining an increasingly large slice of a market that appears to be growing faster than the computer industry as a whole.

In selling software applications that have been created or nurtured by ASD, IBM will become to customers a sort of software supermarket or department store. The company will offer customers a broad line of products and the benefit of one-stop shopping. IBM will control its own product line while selling the wares of others under its own label.

In addition, it will sell third-party products under their own labels and will recommend still others that will be sold independently. Success for all this software,

Gibson is a Computerworld senior writer.





# Presenting a mainframe

It was five short years ago that DCA first introduced you to IRMA™.

Since then, over half a million IBM® PC, XT, AT® and compatible users have made our IRMA family the industry standard in 3270 micro-to-mainframe communications.

But now, IRMA 2 provides connectivity

between mainframes, PCs and the new IBM Personal System/2® models. While MacIRMA® connects mainframes with Macintosh IIs and SEs. All with the same 3270 emulation features your users have been familiar with for, well, five years now.

And what's good news for you is all of our

# frame's view of DCA.

products can support the DCA and IBM mainframe file transfer software you probably already have installed in TSO, CMS and CICS environments.

What's more, DCA has products for every connectivity option. Including coax, SDLC, LAN gateways, LAN workstation software,

twinax and asynchronous communications.

So, at a time when you're under the gun to preserve your company's investments in hardware, software, training and support, we can provide some help. It's called consistency.

For a closer look, call DCA at 1-800-241-IRMA, ext. 504. 

PS2 Model 80 are trademarks of International Business Machines Corporation. Apple is a registered trademark and Macintosh II and Macintosh SE are trademarks of Apple Computer Inc. Compaq and Compaq 386 are registered trademarks and PC 386 is a trademark of Compaq Computer Corporation. AT&T is a registered trademark and PC 6300 is a trademark of American Telephone and Telegraph and AT&T Information Systems. ©1987 Digital Communications Associates. All rights reserved.

# ONE LOOK AT OUR COMPUTER LEASE.

## AND THEIRS JUST DOESN'T COMPARE.



For eighteen years now, Dataserv has completed some of the most competitive computer deals around. That's one strong reason to routinely get our quote.

But there are many more. Especially now that we're a BellSouth company, we have the financial strength to offer even more flexible finance terms and lower lease rates than we ever could before.

And after we write a lease, we keep it. That is something that's becoming downright rare these days. We won't sell it out from under you, so you won't have to be concerned that your fate will end up in the hands of some uninterested third party with no concern for you or your business.

Service. Maintenance. Hardware and upgrades. We provide just what your growing business needs, just

when you need it, at prices you can just about bet you'll never beat. That's why we've been a leader in computer equipment sales and leasing all these years. And that's why we believe that once you see the lease we write, no one else's computer lease computes. Or competes.

Call and ask us to plug in the numbers: 800/328-6729, in Minnesota call 612/829-6000. Or contact Dataserv Incorporated, 12125 Technology Drive, Eden Prairie, MN 55344-7399.

**Φ**  
**dataserv**  
A BELL SOUTH Company

New Jersey, (201) 664-7966; Florida, (813) 933-0805; Texas, (214) 427-6544; California, (310) 668-5400

Circle Reader Service Number 44

## SHOPPING

CONTINUED FROM PAGE 33

some of the risk as well as some of the reward. It is good for both," Guglielmi says. He cites the agreement between IBM and Lotus as a good example.

John Landry, executive vice-president for application products at Cullinet Software, Inc., says that despite his company's bitter market struggle against IBM's DB2 data base system, the firm is actively discussing areas of cooperation with Berland.

As a distinct, entrepreneurial division and in reaching out to cooperate with others, ASD embodies the "new" IBM. But not everyone thinks it will be easy for IBM to change its nature, if only in a single division. "Applications are built on years and years of direct industry education. I think IBM has got some major fundamental cultural changes to make," M&D's Redfern says.

John Inlay, chairman and chief execu-

**"APPLICATIONS are built on years and years of direct industry education. I think IBM has got some fundamental cultural changes to make."**

DEAN REDFERN

CORPORATE VICE-PRESIDENT,  
MCCORMACK & DODGE CORP.

tive of Management Science America, Inc. (MSA), seconds Redfern's opinion. "They need to develop a software mentality. You need to think like an engineer."

"The biggest challenge will be to change the sales force, which is still hardware-oriented," says Stuart Miller, president and chief executive of Software AG of North America, Inc.

Guglielmi acknowledges that he must add a new dimension to IBM's culture and says one of his goals is to reorient the company to accept that applications drive sales rather than innovation that hardware sells itself. He also says that in addition to wanting good software, customers want their software supported. IBM will give small companies credibility, he would not otherwise have, he says.

But Redfern, referring to IBM's marketing agreement with Hogan Systems, says a hard question at the heart of IBM's close relationship with others remains: "If Hogan goes belly-up, will IBM assume responsibility for the lines of code?"

Indeed, even two years after its signing, the Hogan deal is still controversial. While some software vendors perhaps view them as being "blessed" at Hogan has been, others scoff at such a relationship. "The market was going away from Hogan," Brooks Associated Goldstein says. "Then IBM snatched them as the best. Others were hurt by this. And it's not good for the user. In the Hogan deal, IBM saved Hogan, but the real loser is IBM."

"IBM's selling efforts have been non-effective," Software AG's Miller says. "IBM's tendency is to go for those companies whose survival is questionable,

even though they say they are going for the best of breed."

Nonetheless, Guglielmi and other ASD officials say there will be more agreements similar to the one with Hogan, although they will not say when and with whom.

### Bringing up SAA

A less controversial but equally important role for ASD will be its active promotion of SAA. Responsibility for the definition and structure of SAA is in the hands of Earl Wheeler.

He reports to ASD Vice-President Mike Saranga, who leads the Application Development Systems and Integration division. Saranga's division also handles artificial intelligence activities and the ar-

Cross System Product fourth-generation language.

The importance of SAA is perhaps most apparent in IBM's showdown with Data Equipment Corp., according to Miller. "DEC has the SAA problem solved. That's 80% of IBM's problem," he says.

But while the need is immediate, SAA will not be in place for some time. "SAA will not roll out in a year," Guglielmi says. Instead, as SAA interfaces become defined over the next several years, they will be made public, and tool kits will be shipped to developers.

"It is a question of degree and time. We are striving to get commonality in our application line," says Anthony Mondello, ASD's vice-president of office systems.

Mondello's office systems division was created in mid-1986 and later grouped within ASD.

"Each year, there will be more and more in common between applications running on OS/2, System/36 and System/38 and VM," he says. "The goal is to introduce more and more software that looks and feels the same."

Mondello says that since his organization was moved into ASD, there has been no great change in its internal organization. The difference is to be found in interaction with the other departments of ASD.

He points to the benefits of having Berland's group as a primary point of contact with outsiders. The Lotus deal, for

*Continued on next page*

## Something keeping you from changing DB2 data structures?



Changesaurus—(CHANGE-a-SAU-rah)

It's not that you can't make a change; it's what happens when you do make a change. Changesaurus, that jealous guardian of the DB2 catalog, is dangerous when provoked. Because of the demands of Changesaurus, DBAs have spent upwards of 50% of their time battling complex change procedures.

But those days are gone. Now there's DB2 ALTER from BMC Software, which supports all changes to attributes of objects. DB2 ALTER automatically restores data, dependencies and authorizations. It features commit-point control and restart capability, and Rename, Migrate and Create Like commands.

DB2 ALTER provides:

- Complete control of the change process
- Reduced development and maintenance costs
- Elimination of costly user coding errors

Circle Reader Service Number 45

For more information, or to begin a 30-Day-Plus Free Trial on DB2 ALTER, mail the attached coupon, or call BMC Software.

**1-800-841-2031**

in the USA or (713) 240-8800

1 800 221-3898 in Canada

**BMC**  
SOFTWARE

BMC Software, Inc.  
P.O. Box 2002 • Sugar Land, TX 77487-2002

Contact me about a 30-Day-Plus Free Trial of DB2 ALTER.

Contact me with more information on DB2 ALTER.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_

## SHOPPING

FROM PREVIOUS PAGE

example, was struck by Berland and later handed to Mondello. Indeed, Berland's function at ASD is much like that of a marriage broker: He will find third-party prospects and pair them with the appropriate vice-president.

In addition to Mondello and

Saranga, other ASD vice-presidents include Bob Williams, in charge of Computer Integrated Manufacturing Systems, including MAPICS and COPICS; Lorriane Fenton, in charge of finance and general systems (such as health, construction and distribution) and dealings with Hogan; and Brian O'Connor, in charge of plans and controls for ASD itself.

Overseeing activities in Europe is Peter Staley, group director of office and application software development for Europe, the Middle East and Africa, headquartered in Paris. In Tokyo, David Proctor, director of application products for IBM's Asia and Pacific Group, monitors developments in Japan.

Mondello, Williams and Fenton say their being together

within ASD will help them make office, factory and financial applications work together. "If an engineer wants to write a letter, he doesn't want to go to another terminal," Williams says. Conforming to SAA guidelines is a requisite for achieving corporatewide consistency, the IBM officials say.

SAA guidelines will also make it easier to mix and match appli-

cations created in different countries, IDC's Burris says.

As for third parties, they will need to support SAA in order to play in the IBM world. It is likely, therefore, that all independent vendors — even those that compete with Big Blue — will be dealing with ASD to some extent. "It's going to be a very touchy thing. We are going to work with them and compete with them," MSA's Imray says.

But not all industry players believe there will be a great change from the status quo.

"Thus far, they have just brought the organization together, but reorganization in itself doesn't solve the problem," Miller says. "If Unisys or HP had done this, it would have been a massive industry yawn."

And contrary to the protestations of ASD officials who say the

## Gandalf Launches STARMASTER.

*"MY big question is, What is in this for the customer? I think there will be fewer choices."*

STUART MILLER  
PRESIDENT AND CHIEF  
EXECUTIVE, SOFTWARE  
AG OF NORTH  
AMERICA, INC.

division will give users more applications, Miller says there will be fewer applications.

"My big question is, What is in this for the customer? I think there will be fewer choices," he says. IBM will find it easier to market a small number of packages instead of a large, confusing array, he explains.

Indeed, Berland says the number of applications in IBM's portfolio has been reduced by about half, from a total of 3,000 a few years ago. He wants to reduce the number further.

But the single most important difference between the way things were before and the way they are now could be Guglielmi himself. Thrust into the spotlight with a critical part of IBM's future riding on his shoulders, the 26-year IBM employee brings a broad resume to his job.

Guglielmi began with IBM in 1961, writing software. He later moved to roles in marketing and distribution. He spent three years in Europe working on the 4300 series of mainframes and, most recently, tracked financial results for IBM's large systems.

Three months into the life of ASD, he says the organizational phase is drawing to a close. Users can now look for results. And Guglielmi talks as if he is hungry for success.

"I am going to be impatient," he says. "I want to get more velocity on the delivery of applications to IBM customers."

## The new, hybrid virtual connectivity system that helps you make these connections...and more.

Welcome aboard STARMASTER. Destination: the future of network communications. Estimated time of arrival: today.

Gandalf proudly introduces STARMASTER...the advanced synchronous, modular network system that integrates the technologies, standards, applications and products of various vendors, independent of intervening protocols or transport facilities.

STARMASTER links users, terminals, personal computers,

workstations, peripherals and transport systems into one cohesive, applications transparent network.

It's ready to link async, sync, fax, voice and video users at a lower cost and higher throughput than alternative solutions. STARMASTER puts you in control of your entire network...giving your computing investment a strategic edge. And because it's a modular system, it can be individually customized to your specific needs and applications.

And it's all backed by Gandalf's full range of support services. The future. To get there, you've got to have connections.

1-800-PACINET, EXT. 493  
In Illinois: 312-541-6060  
In Canada: 613-228-6900

Productivity  
Through Connectivity™

**gandalf**

Circle Reader Service Number 46

# MASTER PLAN FOR THE PS/2

*SAA is the key to IBM's dominance in corporate microcomputing*

BY JOHN XENAKIS

**W**hile Systems Application Architecture (SAA) is still a hazy concept to users and analysts, IBM clearly views it as the blueprint for the company's continuing dominance in corporate microcomputing.

IBM's goal is to crystallize the industry on a set of Personal System/2 software, designed in accordance with SAA specifications, that is consistent with the firm's minicomputer and mainframe products. IBM will then have effectively turned the tables on the competition with regard to architectural compatibility.

Early signs indicate the industry is heading in the direction that will achieve IBM's aim. Important ven-

dors such as Lotus Development Corp., Ashton-Tate Corp. and Microsoft Corp. are developing versions of their software that will run only under the OS/2 operating system being built by Microsoft and IBM. Many of these packages will use the IBM-standard Presentation Manager user interface or the

SQL data base interface. Both are integral parts of SAA.

IBM has put in place an ambitious program to market micro software products aggressively under the newly created Application Systems Division. The products might be IBM's own or might come from a

*Continued on next page*

Xenakis is software editor of Computer Update magazine, published by the Boston Computer Society. He is president of Xenakis Consulting Services, Inc. in Framingham, Mass.



PAUL SCHERER/LOC

## PS/2 PLAN

FROM PREVIOUS PAGE

third party. "When we say we can build those application programs," says William Lowe, president of the company's Entry Systems Division, "we mean we can either build them or procure them."

In fact, IBM really couldn't

shut out third-party developers, even if it wanted to. "We simply don't have the resources to do it all, nor do we necessarily have the mental intuition to provide the best," Lowe admits.

Certain specific questions about IBM's strategy become clear when they are placed in the context of SAA:

- Will IBM's OS/2 Standard Edition be the same as OS/2 that

runs on PS/2 clones?

• What is the significance of IBM's OS/2 Extended Edition, and will it run on clones?

• What is the relationship between Microsoft Windows and the Presentation Manager?

"In 1985, we had a major decision to make: whether we would develop a unique operating system or continue the level of dependence we had externally

[on Microsoft]," Lowe says.

"Two factors affected our decision. One was that we simply didn't have a great deal of operating system development expertise within the Entry Systems Division. Secondly, a key objective was to maintain a consistency for where we've been.

These two elements led us to join with Microsoft in a development contract on OS/2."

The decision to develop OS/2 jointly with Microsoft was one of four separate decisions that IBM had to make in 1985. The other three were all components of the SAA strategy:

- Communications. The new system had to support Systems Network Architecture (SNA).

- Data base. The new system had to provide SQL, IBM's data base access language.

- Presentation. The new system had to have the "look and feel" of other IBM systems and also implement IBM's Graphical Data Display Manager (GDDM), a graphical presentation language used on larger systems.

"In the case of data base," Lowe says, "with the experience that we've had in Santa Teresa, [an IBM laboratory in San Jose, Calif.], and all the emphasis that we've had on SNA and communica-

## When Your Need For Channel Switching Seems Less Than A Perfect Fit—A Tailor-Made Dynatech Channel Management System (CMS) Is The Solution.

**B**ecause Dynatech's CMS is packaged to meet your specific requirements, you pay for only the functional capacity you need—when you need it.

### Single Crosspoint Modularity—The Tailored Approach

Each channel to control unit switch connection is modularized to an individual plug-in crosspoint card. This modular design allows easy on-line expansion and maintenance. And to ensure unrestricted growth to

(64 x 64), you can tailor the switch to provide exactly the connectivity you need without sacrificing future growth or functionality.

### Efficient Design

The CMS also conserves valuable computer

room floor space. A single cabinet (5' x 16) matrix occupies just one computer room floor tile. The use of contemporary solid state logic results in lower power consumption with attendant cost savings and improved reliability.

### IBM and PCM Compatible

The CMS can switch any IBM or IBM plug compatible manufacturer's channel interface. It is transparent to system software and channel protocols, including the recently announced 4.5 megabyte Data Streaming Channel.

See the difference a well-fitting channel switch can make. Talk to the people at Dynatech for a Channel Management System that's tailor-made to fit your needs.

**Dynatech Data Systems**

8500 Cinderbed Rd., P.O. Box 8500, Newington, VA 22122 703/550-0066

Circle Reader Service Number 47

COMPUTERWORLD

cations protocols, we felt that we could do a better job working with the other IBM laboratories ourselves."

Thus, Lowe decided the two components would be developed entirely by IBM and would be packaged on their own as the IBM OS/2 Extended Edition.

That left one more matter, the Presentation Manager, and that decision could have gone either way; IBM had a proposal to develop it internally and independently of Microsoft.

Lowe says, "Frankly, the functional and performance merits of that [internal] proposal were not superior to what Microsoft was pursuing in its Windows development. So that was one consideration. You don't make a big investment unless you think you can come up with a better mousetrap."

The second was that we were on the SAA trail, and the three key elements were data base, communications and user interface," he adds.

"We had concluded prior to negotiation with [Microsoft Chairman] Bill Gates that because he already had his Win-dows product on the market, if he were willing to accommodate the changes that were required to get the look and feel of the SAA interface and accommodate the technical standards associated with GDDM presentation services, that we would not go our own way and try to come up with

a comparable product. He agreed that he would adapt to those standards."

IBM is publishing a specification as part of SAA called the Common User Access (CUA). A CUA document is scheduled to be published before the end of the year for the benefit of application software developers. According to Mike Maples, director of Software Business Systems for the Easy Systems Division, this specification was used by Microsoft in developing Windows Version 2.0 and Windows/386, both of which implement the IBM user interface.

The net result of this strategy is that IBM's OS/2 Standard Edition will be the main operating system as Microsoft's OS/2 and it will be available on Intel Corp. 80386- and 80486-based machines sold by anyone as IBM-compatible clones.

IBM's OS/2 Extended Edition will be available for sale to anyone and will run on IBM's Personal Computer ATs and on

*IBM is looking forward to the mid-1990s, to an industry that, if the company's strategy works, will have largely adopted SAA.*

PS/2s. The fact that it will run on ATs guarantees that it will run on most competitors — even those that use old hardware instead of IBM's new Micro Channel.

IBM is looking forward to the mid-1990s, to an industry that, if the company's strategy works, will have largely adopted SAA. The clone makers will help this important corporate strategy, not hurt it. IBM knows it has less to fear from third-party application developers and clone developers than from other major system developers such as Digital Equipment Corp.

It is true that IBM is still losing market share to the clone makers, but this fact is irrelevant, the company says. The market share figures include sales of low-end personal computers, a commodity marketplace that IBM has almost completely abandoned. Within IBM's real target marketplace, the Fortune 500, the company's new products give it a decided edge in the continuing fight for market share.

A more fascinating speculation has to do with the future of the Apple Computer, Inc. Macintosh. At the microcomputer level, this system is a formidable competitor to the PS/2, but it

looks less formidable against the consistent micro-to-mini-to-mainframe architecture that will result from SAA.

The Apple and IBM architectures have begun to merge in important ways. On one hand, Windows and the Presentation Manager look a lot like the Macintosh user interface. On the other hand, Apple has increasingly emphasized connectivity of its product with IBM's; it has even endorsed a board some IBM compatibility, at least to the point of interchanging files on floppy disks.

Another threat posed by Apple is that the company might develop an alliance with DEC and develop an alternative micro-to-mainframe strategy that would compete with SAA.

**Proprietary hardware**  
While IBM is encouraging conformance to OS/2 in hopes of establishing an industry standard, the company is taking an opposite stand on the PS/2 Micro Channel.

There is no question that the general industry perception today is that the Micro Channel will be closed successfully. Many industry analysts say they expect the first close products to become available during the first quarter of 1988.

Lowe warns manufacturers that might consider cloning without laying the proper groundwork. "We believe that the PC business is really important to our future," he says. "We view the intelligent workstation becoming a window into our future systems environment; particularly through SAA, we're focusing on the development."

"I'm spending, in this division, in the range of \$400 million per year on development," Lowe says, "and over half of that is in the software. The key to us being able to justify that investment is getting a return on it. If, very shortly, people replicate the design that we put out and then offer products without having to recover the development investment I've made, I'm going to be gone very soon."

Lowe says his people regularly purchase and test competitive products that claim to be compatible with IBM products. IBM doesn't test them to see whether they're really compatible ("I couldn't care less," Lowe says), but to determine whether the competitor has illegally copied IBM's intellectual property.

It would hardly be an overstatement to say that the Micro Channel is very poorly understood, certainly outside, but even within IBM. Although the technical specifications have been published, even IBM executives discuss its implications for future applications in the most general terms.

"Given the characteristics of

*Continued on next page*

## A NEW SOFTWARE PLATFORM

**W**hat do industry leaders see on the horizon for PS/2 applications software in the next few years? Here is a sample of opinions:

**HELL LOWE, PRESIDENT, ENTERTAINMENT SYSTEMS DIVISION, IBM**

"I see a real revolution in the applications that are coming supported by graphics and image and communications to data bases. I think the big application generators are going to be driven by graphics and interconnected data bases."

"New devices like CD-ROMs and their interaction with using imaging will help our customers provide new services to their customers to help grow their businesses."

"When I go around to customers, what they're excited about is that they can visualize image applications — whether they be airlines with travel agencies or insurance companies who want to be able to see the screen to interface with the customer when he comes in and pictorially show the customer what his alternatives are. The data must be shown graphically, and it must be updated frequently, and it must provide quick answers to questions."

"For instance, we've been working with Sears using CD-ROMs tied to PCs to run their part centers. They can get immediate information on inventory when an order is entered."

**ADRIAN KING, DIRECTOR OF PRODUCT MARKETING FOR OPERATING SYSTEMS, MICROSOFT CORP.**

"You have much more memory and graphics; people will be able to develop more sophisticated and complex software products. You can combine applications, pass data between tasks and so on. So we expect to see a bunch of very sophisticated applications appearing."

"What those things are going to be, anyone can guess. You can look at office automation systems currently implemented on microcomputers, and that will give you a good idea where microcomputers are going. It's conceivable that there will be more artificial intelligence applications, since if you look at any AI or expert system, one characteristic they all share is that they use gigabytes amounts of memory."

"I recently saw a demo of an expert system which the application used 70MB bytes of memory, running on Compaq's Desktop 386 under Xenix. It had 10MB bytes of physical memory, with 60MB bytes of virtual memory. That's extreme, but these things chew up memory."

"As a different example, our new announcement of PC Excel will be the first of a new wave of sophisticated application products. If you compare Excel on the Mac with Multiples on the PC, there's no comparison. But if you compare Excel on the PC with Excel on the Mac, you'll see that the PC version is yet much more sophisticated than the Macintosh version."

**JOHN MEYER, PRESIDENT AND FOUNDER, VENTURA SOFTWARE**

"Graphics is important to OS/2, but frankly, we have good graphics tools today, like GEM [from Digital Research, Inc.]. To me, the real promise of OS/2 is the power of Unix, with the application base of MS-DOS. And by the power of Unix, I mean two features: The ability to address large chunks of memory and the ability to handle multiple tasks."

"For example, with multitasking and large memories, we can seamlessly integrate several applications, like Ventura Publishing, together with a CAD [computer-aided design] program and authoring program. As for networks, one of the reasons nets have been slow to be accepted

is because most applications don't run any better on a network. However, publishing is an exception; it's probably one of the most important applications for networks, because you can use it for a work group."

"The biggest surprise I've had since the company started was that we had no idea networking was going to be such a highly demanded item. The first thing anyone asks when they buy Ventura is, 'How do I add ports?' And the second is, 'How do I run it on a network?'

"Ventura stores a single document in multiple files so that if one person is contributing an illustration and another person the text, then each individual user can work on a component with his or her own word processor or graphics program. In future versions, we'll see that many different people will be able to work on a single document, and Ventura will automatically reformat the document as a whole as each contributor's work is completed."

**ED BELLO, CORPORATE VICE-PRESIDENT OF RESEARCH AND DEVELOPMENT, LOTUS DEVELOPMENT CORP.**

"We see OS/2 as the platform for moving ahead with our full line of products. We'll be supporting OS/2, both in character mode and in the Presentation Manager, with our full line of products. In fact, you'll see integrated versions of the new Lotus DBMS and the graphics version of 1-2-3."

"A major development is that OS/2 will allow people to share products, with group application sharing. You can do some of that today with local-area networks, but the multitasking capabilities of OS/2 allow development of group products far beyond what we can do today."

"Lotus DBMS will be a new product, using Presentation Managers and based on the SQL database facility. It will be oriented toward work groups. SQL is absolutely the way the industry is going, and we believe in standards."

"The new DBMS won't run on PCs running PC-DOS, but given our work group orientation, we will certainly have a solution for those people. In fact, unless there's a technological reason to go to PS/2 and OS/2, we tend to design products for both new and old architectures. And where there's a difference, there'll be a co-existence strategy for both. The real question is, Where will all this performance take us? Some of it will wait for 'golden moments,' someone sitting in his house and saying, 'Maybe we ought to do this.' Someone will come up with the next great paradigm, like VisiCalc."

**LEON WILLIAMS, PRESIDENT, MICROPRO INTERNATIONAL CORP.**

"The new graphics interface presents us with some interesting problems. We'll do some sort of ... WYSIWYG [what-you-see-is-what-you-get] product for Wordstar, but if you want to do it in grand style — make your PC word processor or look like a Macintosh word processor — that's a significant development cost."

"Furthermore, changing Wordstar is not very popular with the users. No classic Wordstar user will give up the control keys. For me to go to an icon-based system wouldn't sell to those people. So we've got to come to a both types of users."

"Our large installed base [more than three million copies sold] is both a blessing and a curse. We have less flexibility because we have to satisfy old users. A whole-line word processing company that comes out with a word processor in 1989 will have total freedom."

**JOHN XENAKIS**

## PS/2 PLAN

FROM PREVIOUS PAGE

the Micro Channel," Lowe says, "the OS/2 Extended Edition will run better on machines that run the Micro Channel. The two main characteristics of the Micro Channel are that it can handle concurrent hardware operations independent of the main microprocessor, and it has a much broader bandwidth than the old PC bus. Also, the Micro Channel has task management in it. It has a life of its own."

Lowe claims that in a communications environment, for example, a hefty 20% to 40% performance improvement is expected from the Micro Channel alone. The reason is that a sophisticated commu-

*IT IS even possible that in the near future, true multiprocessing will be available on a single PS/2 computer. In this case, several different processors would be able to access all system devices through the Micro Channel.*

nizations program would have several different asynchronous tasks to manage.

With the old bus architecture, each communications or other resource request had to be handled directly by the main CPU. But on the new systems, the Micro Channel can prioritize and handle

multiple resource requests from different devices.

It is even possible that, in the near future, true multiprocessing will be available on a single PS/2 computer. In this case, several different processors would be able to access all system devices

through the Micro Channel, which could handle the resource allocation for one CPU without interrupting other CPUs.

Richard Haasman, vice-president for programming in the Entry Systems Division, expands this concept to data base management by comparing it to the multi-tasking capabilities of many operating systems, including OS/2. "One of the tasks will be the data manager. The data manager will start a number of requests against the data bases, and that data transfer goes back and forth while other tasks go on," he says.

Of course, the Micro Channel won't help all applications. If there's only one task running, the Micro Channel won't make much difference, since the data manager will go out and request some data, and then the processor will wait until the data request is satisfied.

"But if in the time it's waiting to go to the file, another application starts, for example, to do some communications," Haasman says. "Then the Micro Channel can run more of those requests and get more of them running, so we get an overlap in the data transfers and the amount of work the system gets done in total."

For now, the important point is that programs written to run under OS/2 will execute functionally the same on machines with the Micro Channel as they will on machines without the Micro Channel.

According to Entry Systems Division executives, the only difference would be in performance, or speed of execution.

### Out with the old

Although there is an enormous amount of software developed for the old PCs, the machines should become practically invisible within, at most, five years. The scenario may be the following:

- The cost to manufacture Intel 386-based machines will go down, moving closer to the cost of Intel 8088-based machines. As a result, no one will want to buy an 8088 machine when he can get vastly increased performance for the same amount or slightly more.
- Within two to three years, all the software currently available on PCs will become available through OS/2. In fact, OS/2-only versions will also become available, and these versions will be substantially more powerful than 8088 versions. They will use multitasking and graphics and will be much easier to use.
- At the same time, the cost to maintain the old hardware will begin to increase, so it will become economically advantageous to upgrade.

The original IBM PC came out in 1981, and that family of computers, including the XT and AT, lasted until 1987. It is, therefore, reasonable to wonder whether the PS/2 family will become obsolete in six more years, around 1993.

Lowe says, "I think we've got enough legs on this system to go five or six years. Our expectation, though, is that we can offer substantially bigger steps of performance and functional improvement on this base in incremental fashion more frequently than we did on the old base."

"The growth in price/performance has always been significant on a year-to-year basis — at least 25% to 50% per year. But we made an especially big jump this year," he says. "The point we've been trying to make with the PS/2 family is that if you look at the product that we offer today, it's two to three times better from a price/performance point of view than the [PC/AT] product that we had a year ago."



## Selling and servicing the new IBM systems is a tall order.

It's an order Leasametric can fill with ease. From the new IBM® Personal System/2® computers with the new IBM color and monochrome displays to the IBM Printer™ and IBM Quietwriter™ printers.

Our wide range of IBM software includes the IBM SolutionPac® Personal Publishing System with PageMaker™, CADwirte design and drafting system, Business Advisor with eight general accounting packages, plus our own Lea-A-Value lease vs. buy analysis program.

And what we sell, we service. So when you're ready to order these IBM solutions, talk to Leasametric. Otherwise, you might get a tall tale.

### LEASAMETRIC Data Communications Division

Western California & Pacific Northwest: (714) 777-1000 - Southern California: (800) 429-0979 - Austin: (512) 446-9310 - New England: (401) 722-3456 - Central: (309) 529-4212 - Worldwide: (314) 253-4261

© Leasametric, Inc. \* \* \* \* \* All rights and software must be purchased together. Not available individually.

Circle Reader Service Number 46

**Start your  
subscription now,  
and save over \$14!**

**JUST 58¢ AN  
ISSUE**

For over 20 years, COMPUTERWORLD has covered the ever-changing field of information systems like no one else. And we're moving into the next generation of technological advances with an expanded staff, more features, and the same determination to keep you on top — and slightly ahead — of new developments. Join the celebration! One full year (51 issues) costs just \$29.57, a savings of over \$14 off the basic rate, and only 58¢ an issue!

**PLUS 12 BONUS ISSUES**

**COMPUTERWORLD**



When you subscribe to COMPUTERWORLD, you also get 12 monthly issues of Computerworld Focus, FREE. Each issue covers one particular topic — in depth. Topics include microcomputing, communications, software, connectivity, and much, much more. Leading edge information — for subscribers only!

Subscribe today by returning the order form in this postage-paid envelope now!

Or for even faster service ...

CALL

**1-800-255-6286.\***

And we'll start your subscription immediately.

**Order today!**

(\*In New Jersey call 1-800-322-6286.)

**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO. 55 NEPTUNE, NJ 07754

POSTAGE WILL BE PAID BY

CIRCULATION DEPARTMENT

**COMPUTERWORLD**

P.O. Box 1565  
Neptune, NJ 07754-9916

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



# RISK AND RESPONSIBILITY

*Systems integration — quietly selling  
other vendors' products*

BY EDITH MYERS

**I**BM, a company that rarely acknowledges the existence of competing vendors, is quietly packaging hardware and software solutions for customers that involve sizable amounts of non-IBM equipment. Big Blue is pursuing the systems integration business in a big way.

However, IBM is not actively advertising this new effort in the same manner

as a commercial systems integration firm might. Generally, IBM's systems integration capabilities are seen as an alternative way to capture an account and are activated primarily in competitive bidding situations, according to Dennis Sigloh, director of systems integration for IBM's Information Systems Group (ISG) in Rye, N.Y.

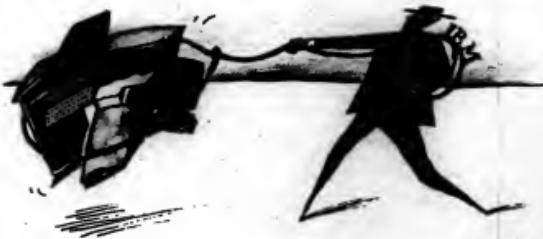
Instead of operating as an independent entity seeking business on its own, IBM's systems inte-

gration effort relies on the judgment of the field sales force.

"A salesman who feels a systems integration solution is appropriate to a particular customer will discuss it with one of our industry group specialists, someone well-versed in the customer's industry," Sigloh says. "If that specialist concurs, we [ISG] get involved. We decide whether or not a systems integration solution is appropriate,

*Continued on next page*

Myers is a Hollywood-based free-lance writer.



ALAN TISHOFF

# RISK

FROM PREVIOUS PAGE

and where it is, we decide where the best skills are available."

The Federal Systems Division (FSD) in Bethesda, Md., has been doing complex systems integration for the government since the mid-1950s. The division is now driven by an expanded charter to meet the same needs of identified commercial accounts.

IBM's current systems integration effort also includes two new groups: Information Services and Systems Integration and Programming Services, both of which are based in Milford, Conn. IBM will also utilize outside systems integrators when

**"THERE are a lot of applications for systems integration in state and local government, in things like computer-aided dispatch systems and fingerprint identification systems."**

DENNIS SIGLOH  
IBM'S INFORMATION SYSTEMS GROUP

it is necessary.

"For a patient-care accounting system, we would probably go to our internal groups, while we might be more likely to look outside for a flexible manufacturing system," Sigloh says. "There is a lot of expertise out there in the computer-inte-

grated manufacturing area."

Sigloh defines systems integration as "the business of adding value by assuming responsibility for combining whatever information products and services the customer requires."

There are two key elements: program

management and risk management.

Program management includes adding value to IBM hardware or software by performing one or more of a variety of tasks. These tasks include designing a system, acquiring some hardware or software from other companies, building custom hardware or software, providing a facilities management capability, training a few thousand end users at remote locations and, finally, developing sophisticated code to tie all of the elements together.

Risk management comes in, Sigloh says, because the integrator, "while performing these tasks, assumes responsibility for all aspects, including the performance of subcontractors, technical performance, meeting schedules, staying within the budget and making sure everything is done to the customer's satisfaction."

IBM's systems integration organizations can become involved at practically any stage in a project's life span. "Sometimes we don't hear about an opportunity until two weeks before a bid is due," Sigloh says.

"Other times," he continues, "we know a year before the bid goes out. Where we have the time, we can get in on the program-definition phase."

#### Advantageous arenas

Although some commercial accounts are taking advantage of IBM's systems integration services, state and local governments are proving to be the most promising markets.

"There are a lot of applications for systems integration in state and local government, in things like computer-aided dispatch systems and fingerprint identification systems," Sigloh says. "In the telecommunications area, there are things like establishing wide-area telecommunications, building network control centers or integrating voice and text messaging systems."

Most state and local government contracts for large systems require the services of a prime contractor. "They have never been willing to deal with prime contractors and subcontractors building separately, so we were not able to respond before because we didn't have systems integration," Sigloh says.

Large commercial accounts, such as United Airlines, tend to be unwilling to discuss IBM's systems integration work because of the strategic advantage they might gain from the services, but smaller public organizations are open about their work with IBM.

#### Linkage abilities

For example, the North Carolina Department of Public Education, based in Raleigh, N.C., awarded a contract to IBM on the basis of its systems integration capabilities.

When fully implemented, the department's Uniform Educational Reporting System (UERS) will tie together central offices in 140 school districts and 2,000 elementary and secondary schools, according to Tom Runkle, director of the program. The department's central offices and larger schools will act as hubs, with microcomputers installed, while the rest of the schools will use microcomputers.

In many of the central offices, Runkle says, the plan calls for upgrades to obsolete equipment. But 40 offices never had any kind of computer equipment. IBM's

## Software Engineered for Simplicity



### Businessman's Perspective

*It simplifies my business... it saves money... it gives me the information I need to run my business... it's adaptable... it does the job... what more could you ask?*

### An Accountant's Perspective

*It's integrated... it's simple... it was designed by accountants for accountants... it's timely and well controlled... it's secure.*

### Data Processing Perspective

*Superior quality... superbly documented... direct and easy to understand... truly state-of-the-art technology.*

#### Packages for:

- Financial
- General Accounting
- Accounts Payable
- Accounts Receivable
- Equipment and Fixed Assets
- Financial Reporting
- Planning & Budgeting
- Payroll
- Distribution
- Order Processing
- Inventory Management
- Sales Analysis
- Purchasing
- Construction
- Job Cost Accounting
- Multi-State, Union Payroll
- Equipment Management
- General
- Computer Assisted Design
- Computer Assisted Programming
- JDE/Lotus® Interface

## J.D. Edwards & Company

4949 South Syracuse Street / Suite 5500  
Denver, CO 80237  
303/773-3732

Circle Reader Service Number 49

New York — 201/346-8969  
Chicago — 312/495-1222  
Atlanta — 404/953-0493  
Dallas — 214/458-0636  
Houston — 713/875-1700  
San Francisco — 415/571-5755  
Newport Beach — 714/955-0118

systems integration contract is for these 40.

The contract calls for installing IBM System/36s in the central offices and establishing communications between them and other machines. The System/36s will communicate with the state's central computer, an IBM 3090, and with IBM Personal Computer ATs and Personal Systems/2s in the schools.

There were 11 contenders the first time the project went out for bid, Ruslike says, and only three the second time: IBM, Burroughs Corp., and Innovate International, Inc., a Spartanburg, S.C., vendor of school software that was bidding IBM equipment. IBM was chosen as the winner based on functionality and anticipated service as well as price.

IBM's two primary subcontractors on the North Carolina school system contract are J & K Computer Services, Inc., in Mesa, Ariz., which provides payroll and general ledger software, and AMS, a Charlotte, N.C., training company.

#### Partners and subcontractors

The vendors are typical of the partners IBM works with as a systems integrator. IBM's divisions have joined in contracts with telecommunications companies, software developers, and eight accounting firms, data service bureaus, engineering consulting firms and plant and equipment manufacturers.

Among the consultants IBM has worked with are Arthur Andersen & Co. and Bravo Franco, Inc., a Pittsburgh engineering consulting firm. IBM has also worked with Jervis B. Webb Co., a materials-handling company, on systems for complete plant automation.

Other IBM partners in systems integration projects include Martin Marietta Corp., Bellcomm Computer Services Co., McDonnell Douglas Corp.'s Information Systems Group and ITT, Inc., a Boston software house.

Work on IBM's portion of UERS began in March and is expected to be completed sometime next year. Ruslike says there are still some communications problems to be worked out.

"They have software for communications between the System/36s and the 3090 and between the PC ATs and the 36s, but they don't have anything that makes the PS/2s communicate with the 36s," he says. "That's understandable because the PS/2s were not even in the original system specs because they hadn't been announced. But IBM has said it will have that software, and I'm going to keep writing to them until I know they do."

While IBM's systems integration contract with the school department involves only IBM hardware, with non-IBM software and training, the ratio of IBM equipment to non-IBM equipment in other contracts varies according to customer needs, Sigloch says.

"It could be 95% to 98% IBM, with only the addition of some software," he says. "But at the other end of the range are telecommunications systems, where a lot of cables would be involved, or plant automation, where the computer required to control and monitor the system is just a small piece of the total system."

IBM is also using its prime systems integration division, FSD, to pursue healthcare accounts. FSD recently joined forces with General Electric Co.'s medical systems group to develop integrated diagnostics that tie a hospital's diagnostic imaging systems with its patient information

systems. FSD is also the prime contractor for the implementation of an automated laboratory system for Medexpress in Memphis, formally known as the Memphis Laboratory Center, Inc. The primary subcontractor is Lab Force, Inc., a Dallas-based software company.

The computerized system will combine IBM 370 mainframe and PS/2s with a Lab Force software system called Laboratory Management System (LMS).

The software is designed to increase the speed and efficiency of analyzing and reporting laboratory specimen test results and to make possible integration of the results in a central information system.

After a year-long vendor selection process, Medexpress chose IBM over Cerner

Corp., a Digital Equipment Corp. OEM, according to Mary Jo Grier, director of information and telecommunications systems for Medexpress. Although she was not directly involved in the selection process, Grier says she believes the choice was based on support, price and functionality.

The contract was awarded late last year. System installation is still in process, with completion expected by December. Medexpress was formed last year to be a clearinghouse for laboratory test results, including drug and AIDS testing.

The system will permit large hospital chains, clinics and other health care providers to work on-line with a Medexpress data base of test results, integrating them

into their own information systems.

Medexpress had been using Lab Force's LMS software on Prime Computer, Inc. equipment, and part of IBM's task is to manage the conversion of the software to run on the 370 and the PS/2s. IBM plays a managerial role in installation and conversion, while Lab Force handles audits and specific training. Lab Force also monitors the implementation schedule, checking for any customization that might be needed.

Though it is likely to remain low-key, IBM's systems integration effort will expand in the future to wherever the company sees an advantage to be gained by offering management, installation and instruction services in a multivendor environment, Sigloch says.

## IBM 9370 and Westinghouse Software Solutions

If you're expanding your computer capabilities with the new IBM 9370 Supermini computer... congratulations! We can help you get that new system up and running quickly... to realize the productivity benefits in your data center right away.

Westinghouse has been providing Software Solutions for over 18 years. We have a family of proven systems software for MVS, VSE and VM operating systems... to perform the basic tasks like backing up data... to the complex tasks like tying a group of 9370s into your network and getting a single system image. Our broad range of products includes a network access and control package, multiple session manager, disk utility system, the WESTI TP monitor, disk space manager, job accounting package and many more.

If you want to get on a fast track to computer productivity, you don't need to go any further than Westinghouse... we're a name you can be sure of.

Westinghouse Software Solutions... super software for that Supermini.

### Westinghouse SOFTWARE SOLUTIONS



Westinghouse

Management Systems  
Software

P.O. Box 2728

Pittsburgh, PA 15220

(800) 348-3523

(412) 256-2900 in PA

IBM is a registered trademark of International Business Machines



# One good decision leads to another.



# HAVE WE GOT NEWS FOR YOU!

Extra! Extra! Read all about it — in **COMPUTERWORLD**, the newsweekly for the total systems picture. You need the most up-to-the-minute news. Hot off the presses. While you can still use it. Not a week or two later.

And **COMPUTERWORLD** delivers — right to your desk. We keep you on top of all the latest news, products, people, developments, trends and issues — things professionals like you need to know to get ahead. And stay there.

## More good news.

SPOTLIGHT, a regular section within **COMPUTERWORLD**, details a single product category — LANs, printers, financial software, security products, graphics workstations. Each SPOTLIGHT includes surveys of key vendors and head-to-head product comparisons with an at-a-glance ratings chart.

## Get your own copy.

You can't afford to wait for the hottest news in the business. Get your own copy of **COMPUTERWORLD**. 51 information-packed issues. All backed by our no-questions-asked Money Back Guarantee.

## 12 bonus issues of **COMPUTERWORLD FOCUS**.

Order now and you'll also receive 12 issues of **COMPUTERWORLD FOCUS**, each one dealing in-depth with a single vital topic — Connectivity, Departmental Computing, Data Security. All FREE and ONLY for **COMPUTERWORLD** subscribers.

Call toll-free

**1-800-255-6286**

(in NJ call 1-800-322-6286) to get your own copy of **COMPUTERWORLD**.

And get the late-breaking news — before it's too late.

Windows open to 80386 power High-octane Microvaxes roll

## Lack of unity endangers the promise of DAT

BY JAMES L. MARTIN

Although digital media tape (DAT) is not available yet in the U.S. consumer market, the new media is causing concern among industry data storage

DAT, or Data DAT (DDAT), an industry insiders call it, promises capacity of up to 1.2G bytes and storage rates of up to 10M bytes/sec. This represents an increase over current standard quarter-inch DAT cartridges with 150M byte capacity.

Storage rates of 6M to 8M bytes/sec are available.

## Storage Tech boosts solid-stateance:

BY JAMES CORNOLLS

LOUISVILLE, Colo. — Storage Tech Corp. has announced a new family of solid-state disk drives.

## Codex reveals net manager

BY THOMAS J. HANNA

## DB2 advantages require flat u

Development benefits over JMS seen

BY RANDI COOK

IBM's Randy Cook, IBM's Paul Frazee, and others

## Wang takes Ethernet

BY ELIZABETH BURKE

Wang Laboratories has taken a first step on the

LAN's Ready

IBM's Paul Frazee, and others

## ► PRODUCTS ◄

# THE LAST 12 MONTHS

COMPILED BY  
MICHAEL BALL

**I**BM has flooded the marketplace with product introductions since the last *Extra* magazine on the company, published Dec. 3, 1986. The following list includes selected major announcements based on *Computerworld* articles and research. IBM news releases and analyst opinions. *Computerworld Extra* estimated the performance figures. IBM supplied future shipment dates. Introductions of a series of models announced on one day are grouped, with initial outlook and current status comments for the series following the specifications.

## JANUARY 1987

**Product series:** 3090 Enhanced Models

**Model name:** 3090 Model 150E

**Price:** \$1.65 million

**Specifications:** Upgraded model, with 32M to 64M bytes of random-access memory (RAM), 128M-byte disk and estimated power of 10.1 million instructions per second (MIPS). Unenhanced 150s can only be upgraded to 180Es or higher.

**Introduced:** Jan. 26, 1987

**Ship date:** May 1987

**Model name:** 3090 Model 180E

**Price:** \$2.6 million

**Specifications:** Upgraded model, with 32M to 64M bytes of RAM, 256M-byte disk and an estimated 15.6 MIPS. Unenhanced 180s can only be upgraded to 200Es or higher.

**Introduced:** Jan. 26, 1987

**Ship date:** May 1987

**Model name:** 3090 Model 200E

**Price:** \$4.5 million

**Specifications:** Upgraded model with 64M to 128M bytes of RAM, 512M-byte disk, two CPUs and an estimated 31.2 MIPS. Unenhanced 200s can only be upgraded to 300Es or higher.

**Introduced:** Jan. 26, 1987

**Ship date:** May 1987

**Model name:** 3090 Model 300E

**Price:** \$5.6 million (after a \$150,000 cut-a-month after initial shipment)

**Specifications:** New model, with three CPUs, 64M to 128M bytes of RAM, 512M-byte disk



The PS/2 Model 30 and Color Display Model 8513

and an estimated 46.9 MIPS.

**Introduced:** Jan. 26, 1987

**Ship date:** Third-quarter 1987

**Model name:** 3090 Model 400E

**Price:** \$8.38 million

**Specifications:** Upgraded model with 128M to 256M bytes of RAM, 1G-byte disk, four CPUs and an estimated 61.5 MIPS. Unenhanced 400s can only be upgraded to 600Es.

**Introduced:** Jan. 26, 1987

**Ship date:** May 1987

**Model name:** 3090 Model 600E

**Price:** \$10.34 million (after a \$600,000 cut-a-month after initial shipment)

**Specifications:** New model, with 128M to 256M bytes of RAM, 1G-byte disk, six CPUs and an estimated 79 MIPS.

**Introduced:** Jan. 26, 1987

**Ship date:** Third-quarter 1987

**Initial outlook for series:** Unprecedented price/performance improvements from IBM — 6% to 15% across the line, with increases by up to 20% to higher models from 15% to 28%.

"The 600E is an excellent increase in capability and support for the central DP department," says John Logos of The Yankee Group. "But most people are looking for better price/performance, not power."

**Current status:** A month after shipment, IBM cut prices of the two new models and all up-grades. "The price cuts are really cosmetic," says Bob Djordjevic of Amstar Research, Inc. "It creates a talking point for sales execs." Slow starting sales are attributed to even better price/performance of used 3090s, which many customers perceive as functionally similar to 3090s. "The 3090s offer reasonable price/per-

formance advances but are a hard sell right now," notes George Elling of Oppenheimer & Co. He adds that the market for the 600E and future, more powerful models is small but committed. "There will always be certain accounts that take as many MIPS as you can give them."

**Product series:** PC Convertible enhancements

**Product name:** Enhanced LCD

**Price:** \$250 alone, \$1,995 bundled as part of enhanced PC Convertible

**Specifications:** Super-twist, antiglare screen, an effort to improve character readability.

**Introduced:** Jan. 27, 1987

**Ship date:** Jan. 27, 1987

**Product name:** Enhanced internal modem

**Price:** \$450

**Specifications:** Option for PC Convertible, uses either IBM or Hayes Microcomputer Products, Inc. command sets.

**Introduced:** Jan. 27, 1987

**Ship date:** Jan. 27, 1987

**Product name:** 256K-byte memory card

**Price:** \$390

**Specifications:** Allows maximum PC Convertible RAM of 640K bytes.

**Introduced:** Jan. 27, 1987

**Ship date:** Jan. 27, 1987

**Initial outlook for series:** "The Convertible enhancements were overblown," says David Greenblatt, president of DGC, Inc. "It's hard to believe that someone would have come out with a modem that wasn't Hayes compatible to begin with. The only thing the improvements show is that once they [IBM] screw up, they eventually will figure out the problem and fix it."

**Current status:** As a group, these enhancements brought the basic features up to the level of many popular, lower-priced Japanese laptops. But customers were not impressed. "These are things that they should have had in the first place," says Jeff Elfrich, General Electric Co.'s manager of product technology.

Ball is a free-lance writer based in Boston.

## FEBRUARY 1987

**Product series:** RT Personal Computer 6150s

**Series specifications:** All 32-bit reduced

*Continued on next page*

## LAST 12 MONTHS

FROM PREVIOUS PAGE

instruction set computer (RISC) machines. Vast improvement in price/performance, storage size and access rate (to 5,810M bytes at 1.08M bit/sec.) in addition to RAM (4M to 16M bytes) and graphics (15- to 19-in. screen with one million pixels).

**Model name:** RT PC 6150 Model 115 (desktop)  
**Price:** \$10,600  
**Introduced:** Feb. 2, 1987  
**Ship date:** May 29, 1987

**Model name:** RT PC 6150 Model 125 (floor-standing)

**Price:** \$16,100  
**Introduced:** Feb. 2, 1987  
**Ship date:** May 29, 1987

**Model name:** RT PC 6150 Model B25 (floor-standing)  
**Price:** \$17,760  
**Introduced:** Feb. 2, 1987  
**Ship date:** May 29, 1987

**Initial outlook for series:** "I'm still looking for a real engineering workstation. A beefed up RT is still just a beefed up RT." The Yankee Group's Logan comments.

**Current status:** "The RT has not received the popularity it deserves," DGC's Greenblatt says.

"I don't see how IBM's going to con-

tinue it," quips Fran Salutti, an analyst at L. F. Rothschild & Co. "I hope my life is longer than the half-life of the RT."

**Product name:** Distributed Data Management (DDM)/PC  
**Price:** \$395  
**Specifications:** This product allows PC access to host DDM programs via LU6.2 protocols. But first, the user must program interfaces.

**Introduced:** Feb. 17, 1987  
**Ship date:** Third-quarter 1987

**Initial outlook:** Fine for distributed order-entry applications, particularly those already converting to LU6.2. Otherwise, third-party vendors will have to provide DDM-compatible versions of their programs to permit interfacing.

## APRIL 1987

**Product series:** Personal System/2

**Model name:** PS/2 Model 30-002

**Price:** \$1,695  
**Specifications:** Two 3½-in. drive, floppy disk-only version of the Model 30-021  
**Introduced:** April 2, 1987  
**Ship date:** April 2, 1987

**Model name:** PS/2 Model 30-021  
**Price:** \$2,295

**Specifications:** Fleashed-out Intel Corp. 8086-based PC with improved color graphics, 720K-byte 3½-in. drive and 20M-byte hard disk. It has only three expansion slots and will not be OS/2 compatible.

**Introduced:** April 2, 1987  
**Ship date:** April 2, 1987

**Model name:** PS/2 Model 50-021

**Price:** \$3,595  
**Specifications:** Small-footprint PC AT replacement with 10-MHz Intel 80286-based CPU, 1M byte of RAM expandable to 7M bytes, 1.44M-byte floppy disk drive, 3½-in. and 20M-byte fixed-disk drives and three expansion slots.

**Introduced:** April 2, 1987  
**Ship date:** April 2, 1987

**Model name:** PS/2 Model 60-041

**Price:** \$5,295  
**Specifications:** Floor-standing version of Model 50-021 with 44M-byte fixed-disk drive, expansion to 15M bytes and seven 16-bit slots.

**Introduced:** April 2, 1987

**Ship date:** April 2, 1987

**Model name:** PS/2 Model 60-071

**Price:** \$6,295  
**Specifications:** The 70M-byte fixed-disk drive version of the Model 60-041.

**Introduced:** April 2, 1987

**Ship date:** June 1987

**Model name:** PS/2 Model 80-041

**Price:** \$6,995  
**Specifications:** The Intel 80386 version running at 16 MHz, expandable to 16M bytes of RAM. It comes with a 44M-byte fixed-disk drive.

**Introduced:** April 2, 1987

**Ship date:** June 1987

**Current status:** Shipped a month early.

**Model name:** PS/2 Model 80-071

**Price:** \$8,495  
**Specifications:** Configuration with 2M bytes of RAM standard and a 70M-byte drive.

**Introduced:** April 2, 1987

**Ship date:** June 1987

**Current status:** Shipped a month early.

**Model name:** PS/2 Model 80-111

**Price:** \$10,995  
**Specifications:** Top of the new line, with 20-MHz 80386, standard with 2M bytes of RAM and a 115M-byte drive. Accepts another 70M- or 115M-byte drive.

**Introduced:** April 2, 1987

**Ship date:** Fourth-quarter 1987

**Initial outlook for line:** Aggressively priced by IBM standards. Clone-blocking features include proprietary high-speed MicroChannel bus. Buyers get slightly improved PC-DOS 3.3 and promises of OS/2 multitasking environment capable of addressing 16M bytes of RAM and, in later versions, including a Presentation Manager for the 286 and 386 models. All models come with math coprocessor and

Over 1,000  
companies  
*Worldwide*  
are benefitting from  
Empact Software  
products including:



The Software Product  
that Stops B37, D37,  
E37, Abends.

**WTO**  
MANAGER

The Write-To-Operator  
Message Management System  
For MVS Automation.

**DDP**  
DASD

Dynamic Data Set Pooling  
and Standards Enforcement.

Please call for references  
or free evaluation kit  
404-483-8852

**EMPACT** Software Inc.  
Corporate Headquarters  
1275 Parker Road  
Conyers, Georgia 30027

all but the low end with fixed-disk drives. Current status: In its first three months, the PS/2's share of IBM's micro sales to mainframe sites climbs from 18% to 40%, according to Focus Research, Inc. "At the lower end, the PS/2 Models 25 through 50 are selling well," Oppenheimer's Elling reports. "But a lot of customers are waiting for the operating system, particularly the extended one."

**Product name:** OS/2 Standard Edition  
**Price:** \$325

**Specifications:** Multitasking for 286 and 386 CPUs, capable of addressing up to 16M bytes of RAM

**Introduced:** April 2, 1987

**Ship date:** Version 1.0: December 1987; Version 1.1: October 1988

**Initial outlook for series:** Joint development with Microsoft Corp. It should be downwardly compatible with PC, PC XT and AT software but eliminate upward compatibility. Version 1.1 will augment Version 1.0 with Presentation Manager and windowing. This update will be free to purchasers of Version 1.0.

**Current status:** Unexpected early delivery of Version 1.0 is expected to boost application development. The development kit sold in May for \$3,000 was slow and buggy, causing one third-party developer to "suspend all work until we get a decent copy." Most have faith that Microsoft will trim and debug the operating system adequately and on schedule. "So much of the PS/2 rides on OS/2," says George Best of Systems Consulting.

**Product name:** OS/2 Extended Edition  
**Price:** \$795

**Specifications:** To include a data base management system and such communications features as internetworks interconnects and terminal emulation as well as local-area network (LAN) and Systems Network Architecture (SNA) gateway support in a later version.

**Introduced:** April 2, 1987

**Ship date:** Version 1.1: November 1988

**Initial outlook:** "Maybe introducing a machine without an operating system is IBM's forte," DGC's Greenblatt says, referring to both OS/2s and the 9370 without VM.

## MAY 1987

**Product series:** 4381 Processor Model  
**Name:** 4381 Processor Model Group 21

**Price:** \$225,000

**Specifications:** Single CPU with 8M to 16M bytes of RAM and six standard channels, rated at 2.3 MIPS.

**Introduced:** May 19, 1987

**Ship date:** First-quarter 1988

**Model name:** 4381 Processor Model Group 22  
**Price:** \$330,000

**Specifications:** Single processor with 16M to 32M bytes of RAM, rated at 3.3 MIPS.

**Introduced:** May 19, 1987

**Ship date:** First-quarter 1988

**Model name:** 4381 Processor Model Group 23  
**Price:** \$350,000

**Specifications:** High-end uniprocessor with 16M to 64M bytes of RAM and 52-nsec cycle time, rated at 4.7 MIPS.

**Introduced:** May 19, 1987

**Ship date:** First-quarter 1988

**Model name:** 4381 Processor Model Group 24

**Price:** \$490,000

**Specifications:** Dual-processor machine with up to 64M bytes of RAM, two 64K-byte buffers and 12 channels standard, rated at 7.8 MIPS. The high end is 8% more powerful than the 3090 Model 120E.

**Introduced:** May 19, 1987

**Ship date:** First-quarter 1988.

**Initial outlook for series:** Mid-range line uses 16-bit chip and fills out gaps between 4381 and 3090 processors. "This beefs up IBM's mid-range and puts them in a better position against DEC," says International Data Corp. (IDC) analyst Richard Mikita.

However, storage limitations may demand a replacement for the line in 1989, according to Arthur D. Little, Inc.'s Oscar Rothenbuecher.

**Product name:** 3090 Model 120E

**Price:** \$985,000

**Specifications:** Has about 75% of the Model 150E's performance at 60% of the price. The first 3090 miniframe priced below \$1 million. It is a 7.5-MIPS model supporting 32M bytes of RAM, expandable to 128M bytes.

**Introduced:** May 19, 1987

**Ship date:** September 1987

**Initial outlook:** This model may get lost in the overlap of 4381 performance. "I wouldn't expect it to be a barn-burner, but the 4381 will sell like hotcakes," pre-

dicts Rick Martin of Sanford C. Bernstein & Co.

## JUNE 1987

**Product name:** VM/XA SP

**Price:** Monthly fee of \$4,500; one-time charge of \$112,500 for processor Group 30 and charge of \$216,000 for processor Group 40.

**Specifications:** VM operating system for IBM 370 computers, including 3090 Model 600E. It supports six processors, 128 channels, 256M bytes of main storage and 2G bytes of expanded storage. It supports concurrent 370 operations in addition to allowing as many as four guest

Continued on next page

**Software Entrepreneurs:**

**ARE YOU THIRSTING FOR FINANCING, COMPUTER TIME, MARKETING EXPERTISE OR DISTRIBUTION SUPPORT? AN OASIS IS IN SIGHT.**

We're Recruit U.S.A., a subsidiary of Recruit Co. Ltd., Japan's leading information management firm. And we're looking for dynamic entrepreneurial partners with innovative software concepts and products for IBM mainframe and Cray Super Computer systems.

Recruit U.S.A. is a venture-oriented company which fosters entrepreneurship. We want to work with you, and your ideas. We have all the resources you'll need: IBM 3090 (MVS/VSE), 9370, 5/38, Cray X-MP/216. Plus most major systems software.

With offices in New York, Los Angeles, and throughout Japan, the muscle and brain power you need to help you bring your product to market.

For more information, contact Mr. David Zing at (212) 750-6100. Recruit U.S.A., Park Avenue Tower, 65 East 65 Street, New York, NY 10022-3219.

All inquiries will be treated confidentially.

**RECRUIT U.S.A., INC.**  
Where Great Ideas Become Dynamic Realities

Circle Reader Service Number 52

## LAST 12 MONTHS

FROM PREVIOUS PAGE

operating systems. Release 2 will offer native SNA support.

Introduced: June 11, 1987

Ship date: March 1988 for Release 1, first-quarter 1989 for Release 2

Initial outlook: "VM is going to continue to do very well, and this product makes it a strategic operating system at the information system level," L. F. Rothchild says. Charlotte Walker says.

Product series: Netview Release 2

Series specifications: Automates boot-up configurations of target 9370 and permits network changes without shutting down the system.

The 9370 machines manage alerts from workstations attached directly or via a LAN.

Product name: Netview Release 2 MVS/IXA, MVS/9370

Specifications: Allows entry of Netview commands and message display at an MVS operator console.

Price: \$37,650 for processor Groups 20 and 30, with a \$1,255 monthly fee; \$1,060 monthly fee for 370s

Introduced: June 16, 1987

Ship date: Fourth-quarter 1987

Product name: Netview Release 2 VM

Price: \$9,020 for processor Group 10 to \$36,095 for Group 40, with a \$940 monthly fee

Specifications: Provides an installation option that reduces direct-access storage device (DASD) requirements for distributed Netview systems that do not require a local operator.

Introduced: June 16, 1987

Ship date: First-quarter 1988

Product name: Netview VSE

Price: \$7,860 for processor Group 10 to \$31,440 for Group 40, with a \$655 monthly fee

Specifications: Supports VSE and provides an installation option that reduces DASD requirements.

Introduced: June 16, 1987

Ship date: Fourth-quarter 1987

Product name: Netview/PC

Price: \$2,000

Specifications: Supports Token-Ring and voice networks as well as non-SNA devices.

Introduced: June 16, 1987

Ship date: June 25, 1987

Product name: Netview/PC Version 1.1

Price: \$2,200; Netview/PC users may upgrade for \$200

Specifications: Will be part of Systems Application Architecture (SAA). Handles Service Point Command Service and supports Realtime Interface Co-Processor Multiport and V.24 and V.25 bis line-switching protocols.

Introduced: June 16, 1987

Ship date: December 1987

Product name: Netview Access Services Version 1

Price: \$11,200

Specifications: Allows users of SNA terminals access to multiple VTAM applications concurrently.

Introduced: June 16, 1987

Ship date: December 1987

Product name: Netview Network Definer

Price: Graduated one-time charges from \$2,240 to \$8,960

Specifications: Menu-driven, interactive network manager. It generates Advanced Communications Function (ACF)/VTAM definitions for SNA and non-SNA devices and distributes them to remote sites.

Introduced: June 16, 1987

Ship date: December 1987

Initial outlook for series: These products address several shortcomings of IBM networking. "Netview is a start," Systems Consulting's Best says, "but their networks are still not as reliable as they should be." "They need a solution like

DEC's," says analyst Rick Sherlund of Goldman, Sachs & Co.

The Netview Network Definer is important to flesh out Netview and ACF/VTAM product lines. This product attempts to facilitate fast adding and changing of IBM networking.

Current status: "DEC still has a big advantage," says Scott Smith, analyst with Donaldson, Lufkin & Jenrette, Inc. "Netview shows that IBM is getting ready but is still not supporting networks."

Product name: Network Equipment Technologies Corp. (NET) Integrated Digital Network Exchange (IDNX) products

Price: From \$25,000 to nearly \$500,000

Specifications: Fault-tolerant high-speed voice/data managers, primarily for T1 digital networks.

Introduced: June 16, 1987

Ship date: Fourth-quarter 1987, Model 20; November 1988, Models 40 and 70. Initial outlook: Not an IBM product per se; the company will only market the T1 multiplexers. IBM is financing and jointly developing future NET products.

Product series: ACF/VTAM Version 3

Specifications: Version 3 Release 1.2 will allow 9370s or 4361s to be multi-dropped. Supports X.25 communications in both and allows peer-to-peer SNA X.25 communications. The VM/SP version will support 9370 Token-Ring. Version 3 Release 2 will support peer-to-peer commun-



IF YOU NEED TO KNOW WHO, WHAT, WHERE,

## BASIS

Text Information Management System

BASIS was the first software system developed specifically for the storage and retrieval of large volumes of textual information. Today, with over 800 installations worldwide, BASIS remains the ultimate Text Information Management System (TIMS) available anywhere.

Design flexibility makes BASIS software the ideal TIMS for diverse information management needs.

From the libraries, to the newsrooms, BASIS' modular design offers flexibility in tailoring the capabilities to the need. Which is why BASIS has helped automate editorial and technical libraries, manuscript processing, project,



BASIS ENABLES TEXT AND DATA RETRIEVAL FROM A VAST WORLD OF

BASIS is designed to keep pace with your world of information, and, without the constraint of hardware dependence.

Because BASIS is portable, your applications can run on many computers, minimizing your hardware dependency as applications increase in size...an important consideration when you are evaluating software for your text information management needs.

An sophisticated as BASIS may seem, it remains a system that is simple to use.

Fast, efficient information retrieval is possible in even the largest databases. BASIS uses "fast path" indexing techniques, providing a simple, yet powerful query facility that makes complex searching easy. Notice and control users may extract information and generate reports using various graphical and command languages. Advanced search

nifications, incorporating the LU6.2 interface for low-entry networking. It also will allow the use of 9370 Token-Ring under VSE.

**Product name:** ACF/VTAM Version 3  
**Release:** 1.2 MVS  
**Price:** \$6,235  
**Introduced:** June 16, 1987  
**Ship date:** First-quarter 1988

**Product name:** ACF/VTAM Version 3  
**Release:** 1.2 VM/SP  
**Price:** \$3,525  
**Introduced:** June 16, 1987  
**Ship date:** First-quarter 1988

**Product name:** ACF/VTAM Version 3  
**Release:** 1.2 VSE  
**Price:** \$3,525  
**Introduced:** June 16, 1987  
**Ship date:** First-quarter 1988

**Price:** \$963  
**Introduced:** June 16, 1987  
**Ship date:** Second-quarter 1988

**Product name:** ACF/VTAM Version 3  
**Release:** 2 MVS/XA  
**Price:** \$6,255  
**Introduced:** June 16, 1987  
**Ship date:** Third-quarter 1988

**Product name:** ACF/VTAM Version 3  
**Release:** 2 VM/SP  
**Price:** \$3,525  
**Introduced:** June 16, 1987  
**Ship date:** Third-quarter 1988

**Product name:** ACF/VTAM Version 3  
**Release:** 2 VSE  
**Price:** \$3,525  
**Introduced:** June 16, 1987  
**Ship date:** Third-quarter 1988

**Introduced:** June 16, 1987  
**Ship date:** Third-quarter 1988

**Product name:** ACF/VTAM Version 3  
**Release:** 2 VSE  
**Price:** \$963  
**Introduced:** June 16, 1987  
**Ship date:** Fourth-quarter 1988

**Initial outlook for series:** Suddenly allows both hierarchical SNA and peer-to-peer networking when used in conjunction with IBM's Network Control Program. May blunt DEC's sales pitch that IBM networking requires shutting down for even minor changes.

**Current status:** "The networking products are nice, but I don't see hundreds of people running to buy them," says Joanne

Mehl of Abington Marketing Associates.

**Product series:** 3190 series display stations and 3151 ASCII terminals  
**Model name:** 3191 Model D and E  
**Price:** \$1,425 with one-year warranty, \$1,525 with three-year warranty  
**Specifications:** Printer port, screen dump, 24- or 32-col. display and keyboard

**Introduced:** June 16, 1987  
**Ship date:** July 1987

**Model name:** 3191 Model L  
**Price:** \$1,725 with one-year warranty, \$2,065 with three-year warranty  
**Specifications:** Model D and E with light pen  
**Introduced:** June 16, 1987  
**Ship date:** August 1987

**Model name:** 3192 Color Display Station Model P  
**Price:** \$2,095 with one-year warranty, \$2,245 with three-year warranty  
**Specifications:** With 14-in. seven-color display, logic element, printer port, keyboard, up to 32 lines by 132 char.  
**Introduced:** June 16, 1987  
**Ship date:** July 1987

**Model name:** 3192 Color Display Station Model L  
**Price:** \$2,295 with one-year warranty, \$2,620 with three-year warranty  
**Specifications:** Model P with light pen  
**Introduced:** June 16, 1987  
**Ship date:** August 1987

**Model name:** 3194 display stations  
**Price:** \$2,195 to \$2,995, \$325 for 192K bytes of add-on RAM, \$325 for asynchronous/ASCII host interface  
**Specifications:** For attachment to System/36 or 38 or 9370. Standard with logic unit and 640K bytes of RAM. Includes three keyboards plus one monochrome and three seven-color display options.  
**Introduced:** June 16, 1987  
**Ship date:** August 1987

**Model name:** 3151 ASCII terminals  
**Price:** From \$399 to \$555, \$50 for DBC VT22, 100 and 520 emulation cartridge, \$25 for Wyse Technology WY-50/50+ emulation cartridge  
**Specifications:** Entry-level and 80- or 132-char. models, as well as native and 10 non-IBM emulation modes. They can be used with IBM AS/400 hosts, including Series/1 and RT PCs.  
**Introduced:** June 16, 1987  
**Ship date:** June 1987

**Initial outlook for series:** "It's about time," DGC's Greenblatt says. "Now they have really put the pressure on that market. These are not the traditional \$300 terminals. Suddenly, the market is competing on features, not price."  
**Current status:** The market will remain slow because of the lack of new processors that demand large numbers of such terminals, Greenblatt says.

**Product name:** VM/IS Release 5  
**Price:** Graduated charges, from \$28,000 for the low-end 9370 to \$106,820 for the high-end 4381, with a monthly fee of \$2,381

**Specifications:** Minor functional improvements but easy, menu-driven installation and simplified user interface.  
**Introduced:** June 16, 1987  
**Ship date:** July 1987

*Continued on next page*

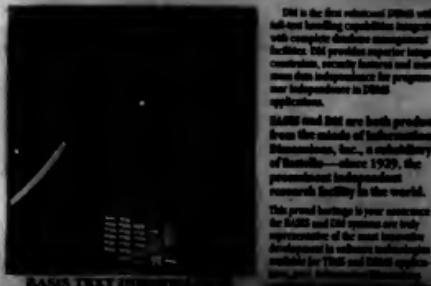
## HERE, WHEN, OR WHY... HERE'S HOW:

RAISIS systems are easily implemented, becoming quickly productive. And, that makes sense.

One of the best benefits of selecting RAISIS for your DB2 is the ease with which RAISIS can be implemented and tailored to your existing application environments. And, as many DB2/VS managers have discovered, RAISIS even provides application support for DB2 and DBTG. And to RAISIS' fully integrated application development facilities. Once implemented, RAISIS databases are easily modified without disrupting system operations. New files and record fields may be added or changed without retooling data.

RAISIS is accurate, efficient, and secure.

Password protection and privilege code access ensure RAISIS installations at the database, table, record and field levels.



DB2 is the first relational DBMS with self-test handling capabilities integrated with complete database management facilities. DB2 provides superior integrity control, security features and maximum data integrity for your DBTG and programmatic interfaces in DBTG applications.

DB2 and DBTG are both products from the minds of Information Dimensions, Inc., a subsidiary of Unisys—since 1979, the preeminent independent research facility in the world.

This proud heritage is your assurance for RAISIS and DB2 systems are truly representative of the most innovative development in software technologies available for DBTG and DB2 applications.

For more information, contact Information Dimensions, Inc.

Information  
Dimensions, Inc.  
A Unisys Company



# 12 MONTHS

FROM PREVIOUS PAGE

**Initial outlook:** IBM bills this product as "prepackaged VM for small sites." The company hopes to increase 9370 sales with it.

"The idea is that you won't need a systems programmer because the 9370 almost costs less than the systems programmer," says consultant Robert Kusch, president of VM/Assist in San Francisco.

**Product name:** VM/DSNX

**Price:** Graduated charges, from \$2,880 for the 9370 to \$11,520 for the 4381, with a monthly fee of \$240.

**Specifications:** Automated software distribution and installation from the central DP source. It allows systemwide changes for 370s under VM/SP. **Introduced:** June 16, 1987

**Ship date:** Second-quarter 1988

**Initial outlook:** IBM claims that it will eliminate the need for programmers at remote sites to handle software changes.

**Product series:** Personal Typing System



The 8086-based Personal Typing System

**Specifications:** Fundamentally a low-end PS/2 Model 30 for the secretarial set. The four models are all based on 8086 CPUs and come with keyboard, software, monitor and printer. None is available with a fixed disk. Printers include familiar dot-matrix correction systems.

**Introduced:** June 30, 1987

**Ship date:** June 30, 1987

**Model name:** Personal Typing System Model 1

**Price:** \$2,895

**Specifications:** Monochrome display and impact printer.

**Model name:** Personal Typing System Model 2

**Price:** \$3,295

**Specifications:** Monochrome display and nonimpact printer.

**Model name:** Personal Typing System Model 3

**Price:** \$3,330

**Specifications:** Color display and impact printer.

**Model name:** Personal Typing System Model 4

**Price:** \$3,730

**Specifications:** Color display

and nonimpact printer.

**Initial outlook for series:** "It seems to us that the day of the dedicated word processor has passed," says Bruce Jenkins of Deratech, Inc. "It is going to be a tough sell."

**Current status:** Dataquest's Voss estimates sales through 1987 between 12,000 and 20,000. Early buyers are Fortune 1,000 firms.

## JULY 1987

**Product name:** PC Convertible Model 3

**Price:** \$1,695 (simultaneous decrease in price of the Model 2 from \$1,695 to \$1,395; upgrade kit with backlit display and new power supply for \$350).

**Specifications:** Enhancements include backlit LCD screen, new power supply, 3½-in. drives and PS/2 compatibility. **Introduced:** Model 25, "says senior analyst Michael Goude of The Yankee Group. "I don't think Apple has anything to lose sleep over."

**Systems Consulting's** Best disagrees, saying, "It is definitely going to give them a presence in the academic market if the discounts are anything like Apple gives."

**Product name:** PS/2 Model 80-311

**Price:** \$13,995, \$6,495 for second 314M-byte fixed disk drive option.

**Specifications:** Designed as a shared device, standard with 2M bytes of RAM, Micro Channel architecture, 314M-byte fixed disk drive and zero to two-wait states. It can accept an additional 314M-byte drive.

**Introduced:** Aug. 4, 1987

**Ship date:** First-quarter 1988

**Initial outlook:** Targeted as a server on a network or as a computer-aided design and manufacturing workstation, according to analyst Robert Tinker of The Yankee Group.

**Product name:** PS/2 Model 25

**Price:** \$1,350 with monochrome display, \$1,750 with color or display.

**Specifications:** An 8086-based machine with integrated display, fixed-drive capability and a standard, single 320K-byte 3½-in. drive.

**Introduced:** Aug. 4, 1987

**Ship date:** Aug. 4, 1987

**Initial outlook:** Candidate for high-volume purchases as LAN stations working off file and compute servers.

**Product name:** PS/2 Model 25

**Price:** \$1,883 with monochrome display, \$1,938 with Enhanced PC keyboard, \$2,338 with color display, \$314 for Collegiate Kit.

**Specifications:** Model 25 with Collegiate Kit education applications package with Microsoft Windows 1.04, IBM mouse, DOS 3.3, word processing and graphics, floppy disk drive and 128K-byte Memory Expansion Kit.

**Introduced:** Aug. 4, 1987

**Ship date:** Aug. 4, 1987

**Initial outlook for series:** "They showed that IBM was getting back to what they're good at — high-quality, high-volume, reliable, high-performance mass storage devices," says The Yankee Group's Lo-

gan. Collegiate Kit education applications package with Microsoft Windows 1.04, IBM mouse, DOS 3.3, word processing and graphics, floppy disk drive and 128K-byte Memory Expansion Kit.

**Introduced:** Model 25, "says senior analyst Michael Goude of The Yankee Group. "I don't think Apple has anything to lose sleep over."

**Systems Consulting's** Best disagrees, saying, "It is definitely going to give them a presence in the academic market if the discounts are anything like Apple gives."

**Product name:** 3990 Model 1

**Price:** \$60,000

**Specifications:** Two-path model with no cache memory.

**Model name:** 3990 Model 2

**Price:** \$110,000

**Specifications:** Four-path model with no cache.

**Model name:** 3990 Model 3

**Price:** \$206,000 for 32M-byte cache G03, \$312,000 for 64M-byte cache J03, \$366,000 for 128M-byte cache L03, \$884,000 for 256M-byte cache Q03.

**Specifications:** Four-path model, with standard 48-hour, nonvolatile backup storage of 4M bytes of data. Supports transfer rates of 4.5M byte/sec.

**Initial outlook for series:** Replaces the System/36 PC, with performance falling between the 5364 and the 5362. Includes an embedded personal computer, which allows users to save costs by attaching a dumb terminal, rather than a PC, to the system.

David Andrews, president of ADM, Inc., calls it "an interim product to carry the bottom end until Silverlake is announced."

**Product name:** Knowledgeplex Price: \$950 monthly license fee

**Specifications:** Software program for developing knowledge-based systems in 370 environments. Includes procedural capabilities of PL/I, as well as rule-based constructs and inference capabilities. Available for the following environments: CICS/OS/VS, IMS/VS, MVS/XA, VM/SP and VM/SP/HPO.

**Introduced:** Oct. 20, 1987

**Ship date:** December 1987

**Initial outlook:** Applications developed with the product are compiled to provide performance faster than that of traditional expert systems.

**Product name:** Knowledgeplex Price: \$500 monthly license fee or one-time charge of \$7,740 to \$30,960 (depending on processor size)

**Specifications:** Enhanced application support, including file sharing, connecting, high-level language support and SAA services. Natural language support. Security and bimodal CMS programming interfaces.

**Introduced:** Oct. 20, 1987

**Ship date:** December 1988

**Initial outlook:** Running on a mainframe, the product opens the possibility of CMS file sharing with a 9370 running VM/4S.

"The lack of file sharing has been a long-standing thorn in the side of VM users," says Gabe Goldberg, director of technology at VM Systems Group, Inc.

**Introduced:** Oct. 20, 1987

**Ship date:** Oct. 30, 1987

**Model name:** System/36 5363

**Model P10**

**Price:** \$10,995 with preloaded operating system, \$10,000 without preloaded operating system

**Model name:** System/36 5363

**Model P20**

**Price:** \$12,095 with preloaded operating system, \$11,100 without preloaded operating system

**Specifications:** Compatible with System/36 5360, 5362 and 5364 System Units. Floor-standing system with 1M byte of main storage. System/36 format-compatible 1.2M-byte, 54½-in. diskette drives. Addresses up to 16 local and 64 remote displays or printers. Model P10 has 65M bytes of integrated disk storage. Model P20 has 105M bytes of integrated disk storage.

**Initial outlook for series:** Replaces the System/36 PC, with performance falling between the 5364 and the 5362. Includes an embedded personal computer, which allows users to save costs by attaching a dumb terminal, rather than a PC, to the system.

David Andrews, president of ADM, Inc., calls it "an interim product to carry the bottom end until Silverlake is announced."

**Product name:** Knowledgeplex

**Price:** \$950 monthly license fee

**Specifications:** Software program for developing knowledge-based systems in 370 environments. Includes procedural capabilities of PL/I, as well as rule-based constructs and inference capabilities. Available for the following environments: CICS/OS/VS, IMS/VS, MVS/XA, VM/SP and VM/SP/HPO.

**Introduced:** Oct. 20, 1987

**Ship date:** December 1987

**Initial outlook:** Applications developed with the product are compiled to provide performance faster than that of traditional expert systems.

**Product name:** Knowledgeplex

**Price:** \$500 monthly license fee or one-time charge of \$7,740 to \$30,960 (depending on processor size)

**Specifications:** Enhanced application support, including file sharing, connecting, high-level language support and SAA services. Natural language support. Security and bimodal CMS programming interfaces.

**Introduced:** Oct. 20, 1987

**Ship date:** December 1988

**Initial outlook:** Running on a mainframe, the product opens the possibility of CMS file sharing with a 9370 running VM/4S.

"The lack of file sharing has been a long-standing thorn in the side of VM users," says Gabe Goldberg, director of technology at VM Systems Group, Inc.

**Model name:** 3990 Model 1

**Price:** \$60,000

**Specifications:** Two-path model with no cache memory.

**Model name:** 3990 Model 2

**Price:** \$110,000

**Specifications:** Four-path model with no cache.

**Model name:** 3990 Model 3

**Price:** \$206,000 for 32M-byte cache G03, \$312,000 for 64M-byte cache J03, \$366,000 for 128M-byte cache L03, \$884,000 for 256M-byte cache Q03.

**Specifications:** Four-path model, with standard 48-hour, nonvolatile backup storage of 4M bytes of data. Supports transfer rates of 4.5M byte/sec.

**Initial outlook for series:** Replaces the System/36 PC, with performance falling between the 5364 and the 5362. Includes an embedded personal computer, which allows users to save costs by attaching a dumb terminal, rather than a PC, to the system.

David Andrews, president of ADM, Inc., calls it "an interim product to carry the bottom end until Silverlake is announced."

**Product name:** Knowledgeplex

**Price:** \$950 monthly license fee

**Specifications:** Software program for developing knowledge-based systems in 370 environments. Includes procedural capabilities of PL/I, as well as rule-based constructs and inference capabilities. Available for the following environments: CICS/OS/VS, IMS/VS, MVS/XA, VM/SP and VM/SP/HPO.

**Introduced:** Oct. 20, 1987

**Ship date:** December 1988

**Initial outlook:** Applications developed with the product are compiled to provide performance faster than that of traditional expert systems.

**Model name:** 3990 Model 1

**Price:** \$60,000

**Specifications:** Two-path model with no cache memory.

**Model name:** 3990 Model 2

**Price:** \$110,000

**Specifications:** Four-path model with no cache.

**Model name:** 3990 Model 3

**Price:** \$206,000 for 32M-byte cache G03, \$312,000 for 64M-byte cache J03, \$366,000 for 128M-byte cache L03, \$884,000 for 256M-byte cache Q03.

**Specifications:** Four-path model, with standard 48-hour, nonvolatile backup storage of 4M bytes of data. Supports transfer rates of 4.5M byte/sec.

**Initial outlook for series:** Replaces the System/36 PC, with performance falling between the 5364 and the 5362. Includes an embedded personal computer, which allows users to save costs by attaching a dumb terminal, rather than a PC, to the system.

David Andrews, president of ADM, Inc., calls it "an interim product to carry the bottom end until Silverlake is announced."

**Product name:** Knowledgeplex

**Price:** \$950 monthly license fee

**Specifications:** Software program for developing knowledge-based systems in 370 environments. Includes procedural capabilities of PL/I, as well as rule-based constructs and inference capabilities. Available for the following environments: CICS/OS/VS, IMS/VS, MVS/XA, VM/SP and VM/SP/HPO.

**Introduced:** Oct. 20, 1987

**Ship date:** December 1988

**Initial outlook:** Applications developed with the product are compiled to provide performance faster than that of traditional expert systems.

**Model name:** 3990 Model 1

**Price:** \$60,000

**Specifications:** Two-path model with no cache memory.

**Model name:** 3990 Model 2

**Price:** \$110,000

**Specifications:** Four-path model with no cache.

**Model name:** 3990 Model 3

**Price:** \$206,000 for 32M-byte cache G03, \$312,000 for 64M-byte cache J03, \$366,000 for 128M-byte cache L03, \$884,000 for 256M-byte cache Q03.

**Specifications:** Four-path model, with standard 48-hour, nonvolatile backup storage of 4M bytes of data. Supports transfer rates of 4.5M byte/sec.

**Initial outlook for series:** Replaces the System/36 PC, with performance falling between the 5364 and the 5362. Includes an embedded personal computer, which allows users to save costs by attaching a dumb terminal, rather than a PC, to the system.

David Andrews, president of ADM, Inc., calls it "an interim product to carry the bottom end until Silverlake is announced."

**Product name:** Knowledgeplex

**Price:** \$950 monthly license fee

**Specifications:** Software program for developing knowledge-based systems in 370 environments. Includes procedural capabilities of PL/I, as well as rule-based constructs and inference capabilities. Available for the following environments: CICS/OS/VS, IMS/VS, MVS/XA, VM/SP and VM/SP/HPO.

**Introduced:** Oct. 20, 1987

**Ship date:** December 1988

**Initial outlook:** Applications developed with the product are compiled to provide performance faster than that of traditional expert systems.

**Model name:** 3990 Model 1

**Price:** \$60,000

**Specifications:** Two-path model with no cache memory.

**Model name:** 3990 Model 2

**Price:** \$110,000

**Specifications:** Four-path model with no cache.

**Model name:** 3990 Model 3

**Price:** \$206,000 for 32M-byte cache G03, \$312,000 for 64M-byte cache J03, \$366,000 for 128M-byte cache L03, \$884,000 for 256M-byte cache Q03.

**Specifications:** Four-path model, with standard 48-hour, nonvolatile backup storage of 4M bytes of data. Supports transfer rates of 4.5M byte/sec.

**Initial outlook for series:** Replaces the System/36 PC, with performance falling between the 5364 and the 5362. Includes an embedded personal computer, which allows users to save costs by attaching a dumb terminal, rather than a PC, to the system.

David Andrews, president of ADM, Inc., calls it "an interim product to carry the bottom end until Silverlake is announced."

**Product name:** Knowledgeplex

**Price:** \$950 monthly license fee

**Specifications:** Software program for developing knowledge-based systems in 370 environments. Includes procedural capabilities of PL/I, as well as rule-based constructs and inference capabilities. Available for the following environments: CICS/OS/VS, IMS/VS, MVS/XA, VM/SP and VM/SP/HPO.

**Introduced:** Oct. 20, 1987

**Ship date:** December 1988

**Initial outlook:** Applications developed with the product are compiled to provide performance faster than that of traditional expert systems.

**Model name:** 3990 Model 1

**Price:** \$60,000

**Specifications:** Two-path model with no cache memory.

**Model name:** 3990 Model 2

**Price:** \$110,000

**Specifications:** Four-path model with no cache.

**Model name:** 3990 Model 3

**Price:** \$206,000 for 32M-byte cache G03, \$312,000 for 64M-byte cache J03, \$366,000 for 128M-byte cache L03, \$884,000 for 256M-byte cache Q03.

**Specifications:** Four-path model, with standard 48-hour, nonvolatile backup storage of 4M bytes of data. Supports transfer rates of 4.5M byte/sec.

**Initial outlook for series:** Replaces the System/36 PC, with performance falling between the 5364 and the 5362. Includes an embedded personal computer, which allows users to save costs by attaching a dumb terminal, rather than a PC, to the system.

David Andrews, president of ADM, Inc., calls it "an interim product to carry the bottom end until Silverlake is announced."

**Product name:** Knowledgeplex

**Price:** \$950 monthly license fee

**Specifications:** Software program for developing knowledge-based systems in 370 environments. Includes procedural capabilities of PL/I, as well as rule-based constructs and inference capabilities. Available for the following environments: CICS/OS/VS, IMS/VS, MVS/XA, VM/SP and VM/SP/HPO.

**Introduced:** Oct. 20, 1987

**Ship date:** December 1988

**Initial outlook:** Applications developed with the product are compiled to provide performance faster than that of traditional expert systems.

**Model name:** 3990 Model 1

**Price:** \$60,000

**Specifications:** Two-path model with no cache memory.

**Model name:** 3990 Model 2

**Price:** \$110,000

**Specifications:** Four-path model with no cache.

**Model name:** 3990 Model 3

**Price:** \$206,000 for 32M-byte cache G03, \$312,000 for 64M-byte cache J03, \$366,000 for 128M-byte cache L03, \$884,000 for 256M-byte cache Q03.

**Specifications:** Four-path model, with standard 48-hour, nonvolatile backup storage of 4M bytes of data. Supports transfer rates of 4.5M byte/sec.

**Initial outlook for series:** Replaces the System/36 PC, with performance falling between the 5364 and the 5362. Includes an embedded personal computer, which allows users to save costs by attaching a dumb terminal, rather than a PC, to the system.

David Andrews, president of ADM, Inc., calls it "an interim product to carry the bottom end until Silverlake is announced."

**Product name:** Knowledgeplex

**Price:** \$950 monthly license fee

**Specifications:** Software program for developing knowledge-based systems in 370 environments. Includes procedural capabilities of PL/I, as well as rule-based constructs and inference capabilities. Available for the following environments: CICS/OS/VS, IMS/VS, MVS/XA, VM/SP and VM/SP/HPO.

**Product name:** CICS/VM

**Price:** \$1,500 monthly license fee, or one-time charge of \$18,000 to \$73,000  
**Specifications:** Integrated CICS transaction processing for VM/CMS systems. Host connectivity and remote data access. Departmental end-user interface.

**Introduced:** Oct. 20, 1987

**Ship date:** May 1988 for Release 1, first-quarter 1989 for Release 2

**Initial outlook:** The product fills in gaps in the 9370's distributed processing lineup, with transaction processing capabilities, among other features. It might not sustain more than 60 transactions per minute, however, according to The Yankee Group's Tasker.

**Product name:** VM/IS Release 5.1, including VM/IS Base Release 5.1 and VM/RSP

**Price:** \$2,381 monthly license fee, or a one-time charge of \$22,200 to \$106,620  
**Specifications:** VM/IS Base Release 5.1 enhanced to include VM/SP Release 5 as well as 12 additional product functions and migration aids from VM/IS Release 5. Offers three optional packages: Transaction Processing, Support with CICS/VM; Support Services and Applications Development Support. Executive-installation feature intended for Network Package, which includes ACP/VTAM, Netview, VSE/VSAM and RSCS.

**Introduced:** Oct. 20, 1987

**Ship date:** June 1988 for MVS host, September 1988 for VM node support, November 1988 for VM host

**Manager (DM)**

**Price:** Under MVS/370 or MVS/XA, \$1,920 monthly fee; under VM/SP, \$1,440 monthly fee

**Specifications:** Netview DM supports network extension for VM and nodes, with System/36 as an intermediate node, and as an end node (connected to the central site via a System/36 intermediate node) and with PC-DOS systems connected to the central site via a System/36 intermediate node.

**Introduced:** Oct. 20, 1987

**Ship date:** June 1988 for MVS host, September 1988 for VM node support, November 1988 for VM host

**Product name:** Netview File Transfer Program Release 1.0 for MVS

**Price:** For MVS Base, \$500 to \$1,500 monthly license fee, or one-time charge of \$15,000 to \$24,000; for MVS Advanced, \$260 monthly license fee, or one-time charge of \$7,800 to \$12,480

**Specifications:** Successor to File Transfer Program Version 2.2 for MVS. Offers new operating modes, requested queuing, user interfaces, new operator commands and TSO user notification. Supports dynamic creation of sequential target files, standard data compression and user exits. Advanced function set enhancements include support for partitioned data sets, dynamic creation of VSAM files and parallel transmission.

**Introduced:** Oct. 20, 1987

**Ship date:** April 1988 for MVS Base, fourth-quarter 1988 for MVS Advanced

**Initial outlook for series:** The products represent a further beefing up of Netview's functions. "These are necessary missing entities. These tweaks of Netview are going to continue ad infinitum," says Frank Dunbeck, president of Communications Network Architects, Inc.

**Product name:** 9750 and 8750 Business Communications Systems

**Price:** Based on price for the 9751 voice/data controller, which ranges from \$158,000 for a 250-line Model 20 to \$790,000 for a 1,500-line Model 40 (A Model 70 system can support 20,000 lines.)

**Specifications:** Replaces Rolin Corp.'s

*Continued on next page*

**CICS USERS:****DON'T  
TAKE OUR WORD  
FOR IT!**

**Read What Datapro Said  
About The Monitor for CICS**

**EASE OF USE  
AND WIDE APPEAL  
WERE BIG ADVANTAGES**



**TESTIMONIALS FROM USERS  
WERE FULL OF  
PRAISE**

**BENEFITS TO USERS  
SPURRED THE MONITOR'S  
RAPID GROWTH**

**OVERALL USER SATISFACTION  
WAS 8.90 OUT OF 10**

To learn more about The Monitor, or for your personal copy of The Datapro Report, send in the coupon or call toll-free 800-227-0911 (in Virginia 703-922-7101)

**MONITOR**  
A CICS monitor from Landmark Systems Corporation

*New! Saving Over 1500 Bits Worldwide!*

**International Agents**

Canada — BroadSoft Software Int'l (GMBH)  
 Australia — BroadSoft Software Int'l (Pty) Ltd.  
 U.S. — BroadSoft Software Int'l (U.S.A.) Inc.  
 U.K. — BroadSoft Software Int'l (U.K.) Ltd.  
 France — BroadSoft Software Int'l (France) Ltd.  
 Germany — BroadSoft Software Int'l (Germany) Ltd.  
 Italy — BroadSoft Software Int'l (Italy) Ltd.  
 Switzerland — BroadSoft Software Int'l (Switzerland) Ltd.

**Landmark Systems Corporation**  
 4311 Landmark Court  
 Springfield, VA 22150

Please send information  Please send free, 30-day trial

Please send The Datapro Report on The Monitor for CICS

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ St. \_\_\_\_\_ Zip. \_\_\_\_\_

Please send \_\_\_\_\_

VSE  VSI  MVS  MVS/XA

SW765

Circle Reader Service Number 55

**Product name:** Netview Distribution

NOVEMBER 18, 1987

COMPUTERWORLD

53



## ► PRODUCTS ◀

# THE NEXT 12 MONTHS

BY ALAN RADDING

**I**BM has traditionally not made it easy for most users to identify — with assurance and well in advance — exactly what the firm's product direction is going to be.

As a result, a core of highly knowledgeable IBM watchers analyze and interpret every statement issued from Armonk, much as the CIA's Kremlin watchers analyze every word Mikhail Gorbachev speaks and interpret the meaning of everything said or left unsaid in *Pravda*.

*Computerworld Extra* surveyed leading IBM watchers on what products could be expected during the next year.

The group included Robert Tasker, chief computer analyst for The Yankee Group in Boston; Peter Flattan, information technology research manager for Arthur Andersen & Co. in Chicago; Frederic Wittenberg, an independent consultant from New York; Dale Kotnick, executive vice-president for research at the Gartner Group, Inc., in Stamford, Conn.; Walter Ulrich, a partner at Coopers & Lybrand in Houston; Thomas Davenport, director of research for the Index Group, Inc., in Cambridge, Mass.; Patricia Seybold, president of Patricia Seybold's Office Computing Group, Inc. in Boston; and Shakuji Arite, president of Arite International Consultants, Inc., in Rye, N.Y.

#### On Summit — the next-generation mainframe.

**WITTENBERG:** "I expect it will be a 370 with a front-end communications processor and a back-end field processor, with attached specialized processors."

Summit will be "a more highly involved architecture than the 370 embedded." The 370 processor will not be replaced but "pushed into the background."

The fully developed machine will be four years in coming. IBM will move in that direction "by degrees" before then. "Next year, there will be one or two Summit modules, such as a communications processor, a parallel scientific computer or a relational data base processor. Summit will be a module, modular replacement for the 3090 but not a lot of high-performance modules added to the 3090."

At the top of the IBM line, the company will announce some kind of supercomputer, probably a mini-size supercomputer to rival other vendors' \$1 million machines, "maybe in a year."

**FLATTAN:** "I don't see much happening with

Summit next year, maybe an announcement. It's pretty far into the future." A "bigger and better box," compared with the current high- and machines, is anticipated — but nothing radical. Improvements in memory and channels are expected, probably the usual 20% performance improvement.

**TASKER:** "Yes, Summit is coming, but so is Christmas." The announcement should come in the third quarter of 1989.

Summit will offer a 30% to 40% price/performance increase. It will contain a 4M-bit chip and an eight-way or greater (up to 16-way) processor with a front- and back-end processor.

For Summit, there will be good market demand, but it will not be overwhelming. IBM must make the transition for its 3090 users "smooth and transparent." The initial customers will be the 3090's biggest customers. "There is a hard-core cadre of big users who will place immediate orders."

**KOTNICK:** "I'm not expecting an announcement on Summit until late 1989."

**DAVENPORT:** "Clients weren't sure they needed the 3090. I sense there will be some reluctance about Summit when it finally arrives." Eventually, the big 3090 users will make the transition to Summit, which will be an increasingly more powerful machine.

#### On the 3090 upgrade — bidding time until Summit.

**DAVENPORT:** "From the initial announcements, it's quite possible we'll see [an upgraded 3090] in the next year. This seems like the right time."

**KOTNICK:** "I expect a performance upgrade for the 3090 this year. A performance upgrade for the E models should come particularly quickly, because the new boards [for the E models] are already easily upgradable." As far as reaching 100 million instructions per second (MIPS), "they are already close to it today."

**TASKER:** "I think we'll see an upgrade. They have an array of new chips." To make the end of the life cycle of the 3090s, IBM will upgrade to a 2M-bit chip but will hold off from going all the way to a 4M-bit chip. "They won't quite make it like Summit." For the same reason, an upgrade of the 3090 to an eight-way processor is not expected.

Instead, "a 20% to 30% performance kicker" will put the 3090 at more than 90 MIPS. The upgrade may come by the end of 1988, but it is more likely to arrive in the first quarter of 1989.

**FLATTAN:** "Depending upon what you want to call it, there will be an upgrade or a price decrease. Either way, you end up with a price/per-

formance gain for the 3090."

There is "demand for [an upgraded 3090] with as much power as they can possibly cram in with the current restrictions." As many as 100 sites might order such a machine tomorrow. IBM is not likely to extend the machine as high as 100 MIPS. "That is more likely for Summit."

**WITTENBERG:** "I certainly see an expanded 3090," but it will be a two-step process over the next four years. Ultimately, IBM will increase processing speed by a factor of 10 through the use of superconducting connections between chips. The result could be a 300- or even 400-MIPS machine.

To start, however, faster conventional models should appear beginning in 1989, with a superconducting 3090 in 1991. "IBM is accelerating its semiconductor efforts."

#### On the low-end 9370 — no consensus.

**TASKER:** "They will extend the 9370 downward in the next six months and extend it upward in the next 18 months."

**WITTENBERG:** "There will be [a low-end 9370] for the same reason DEC moved to a little VAX: because of the network users."

**DAVENPORT:** "Obviously, they'll do it from an architectural standpoint." The primary motivation is the demand for "something on the desk with the 370 in it." A low-end 9370 would be accepted in the market, but this is a small niche, "mostly systems development."

**KOTNICK:** "It's unlikely they'll go with a low-end 9370. They're more likely to go with CMOS, like DEC." The reason is that IBM cannot cost-effectively build a low-end machine using current technology. "The 9370 Model 20 is already underpowered."

Expect a CMOS version in late 1988 that will be heralded by IBM as a Microvax killer. The machine, however, "will really be in the mid-range. They don't need a lower end."

**ULRICH:** "They will follow up with better price/performance, but whether there will be a 9370 desktop — not in the next year and a half, but maybe not too long after that."

**FLATTAN:** "There is demand for something to outperform the [Model] 20 or 40 at the same price, but it is at least a couple of years away."

**SEYBOLD:** "They will definitely extend the line downward, but I can't guess on the timing. It will overlap with Silverstar."

#### On Silverstar — the System/36 and 38 follow-on.

**SEYBOLD:** "It is definitely coming in 1988, but not before mid-year." The machine will combine the data base capabilities of the System/36

*Continued on next page*

Radding is a Boston-based author specializing in business and technology.

## NEXT 12

FROM PREVIOUS PAGE

with the ease of use of the System/36.

Silverlake will serve as the upgrade for both machines. As a result, "Don't expect to see a new 36 or 38."

**ASKER:** "Silverlake is being referred to as a convergent machine. I expect it will be announced in February 1988." As a convergent machine, Silverlake will share a common operating system with both the System/36 and 38 machines, including certain code and functions. It is expected to offer enhanced communications. Organizations of 100 people or fewer that have a System/36 or 38 and do not need a 3090 will go to Silverlake. "You top out on the

THE PC AT will give way to the PS/2. Initially, there will be software support for the PC AT, but IBM will expect users to make the transition, ultimately, to the PS/2.

WALTER ULRICH  
COOPERS & LYBRAND

38, and you have no place to go."

**FLAATTEN:** "The Rochester, N.Y., lab has been working on nothing else but Silverlake. Still, before it's actually announced, you never know. I don't think it will be killed." The official announcement should come early in 1988, with first de-

liveries toward the end of next year.

The machine will be a "38 successor with a possible 36-compatibility mode." Rather than have a common operating system, it will advance the System/38 without leaving System/36 users out in the cold. "The 36 doesn't have anything

going for it" as far as upgrading is concerned. If anything, the new machine will look like a 9370 and use the same peripherals but with a different CPU.

**ULRICH:** "The System/36 and 38 aren't well-positioned anymore. Something has to happen." Silverlake will provide a migration path for 36 and 38 users. IBM is sensitive to these users. The System/36 and 38 have too many customers, making the market too large to be abandoned or ignored.

**KUTNICK:** "Silverlake will be a true hybrid." From an internal operating standpoint, the machine will be more like a System/38 than a System/36, but it will retain some System/36 characteristics. The machine will have "significant SAA [System Application Architecture] capability and utilize SQL."

**DAVENPORT:** "Silverlake would clear up at least half the confusion. Unfortunately, the 36 and 38 are not one line. They are not very comparable." There is a lot of adherence to the System/38 architecture within IBM, but "the 38 stands alone in the rest of the world."

It would be useful if IBM made Silverlake "look like a 36 with upgraded 38-type power," but most experts expect the machine to be a System/36 upgrade with System/38 emulation. Overall, the 36 and 38 lines represent a growth segment for IBM. "When you are talking about the 370 line of the future, the 9370 is where the interest is."

**WITTINGTON:** "Silverlake is where IBM promises the 36 and 38 come together in some way." Don't expect a single processor. Instead, the machine will follow the System/36 or 38, with emulation of the other machine "in a degraded mode." The new machine is likely to be a System/38 with System/36 emulation "to help 36 users so they don't have to switch cold turkey."

On the multilaser PS/2 — the jury is still out.

**WITTINGTON:** "They won't do a multilaser PS/2 if they can sell the [System/36] and VS machines as terminals."

**DAVENPORT:** "The market is still digesting the power of the PS/2 line. The jury is still out on how much multilaser capability the current line has." Because of that, don't expect IBM to tinker with the PS/2 line in the coming year.

As far as the original PC lines go, "the PC and XT are pretty much gone except for the clones. As the office standard, the AT should stay for another few years." The departure of the AT in the face of the PS/2 may not be graceful. "There will be a period of two separate architectures."

**KUTNICK:** "As far as power, the PS/2 is well beyond the System/36." Don't expect a multilaser version or a power increase in the next year.

**ULRICH:** "Users have a tremendous thirst for computing power." The PS/2 line will be upgraded, but not in the next 18 months. Ultimately, the PC AT will give way to the PS/2 system because "customers recognise the need for more horsepower." Initially, there will be software support for the PC AT, but IBM will expect users to make the transition, ultimately, to the PS/2.

**FLAATTEN:** "I'm a little bit hesitant to make any prediction while we're waiting

*Continued on next page*

## What's big and slow and sitting on your 3270 network?

When your end-users complain about response time, you can be sure that *Storrespondassurus* has plodded down on your 3270 network.

To get the big and burdensome *Storrespondassurus* off your network, you can spend a great deal of money (and time) on hardware upgrades, or you can easily and quickly improve response times by adding one

Storrespondassurus (slo-re SPOR-uh-suh-SUH-rus)

of the data stream optimization products from BMC Software.

- 3270 SUPEROPTIMIZER™ for CICS and for IMS - reduces outbound and inbound data streams 50% to 85%.
- 3270 SUPEROPTIMIZER/TSO™ reduces outbound and inbound data streams 20% to 40%—beyond the optimization already done by ISPF.
- 3270 OPTIMIZER/VM™ reduces outbound data streams up to 40%. (PROFS users see up to 60% data stream reduction.)

3270 SUPEROPTIMIZER or 3270 OPTIMIZER—the way to get *Storrespondassurus* off your network. For more information, or to begin a 30-Day-Plus Free Trial, clip and mail the coupon, or call BMC Software.

**1-800-841-2031**

in the USA or (713) 240-8900  
1 800 231-2996 in Canada

**BMC**  
SOFTWARE

BMC Software, Inc.  
P.O. Box 2002 • Sugar Land, TX 77477-2002  
 Contact me about a 30-Day-Plus Free Trial.  
 Consult with me about my application.  
 BMC SUPEROPTIMIZER for:  
IMS under MVS, MVS/ESA  
 CICS under MVS, MVS/ESA  
 CICS under DOS/VSE  
 3270 OPTIMIZER/VM

Name \_\_\_\_\_  
Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State/Prov. \_\_\_\_\_ Zip/PC. \_\_\_\_\_  
Phone \_\_\_\_\_

Circle Reader Service Number 57

COMPUTERWORLD

Please  
Use  
This  
Card  
For  
Product  
Information

# COMPUTERWORLD *Extra*

Reader Service Card  
Issue: November 18/Expires: March 4, 1988

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_ Phone \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

A. Please check the business/industry in which you work: (check one)

1  Manufacturer (other than computer)  
2  Financial Services/Real Estate  
3  Medical/Law/Education  
4  Wholesale/Retail/Trade  
5  Manufacturing/Manufacturing (OPI)  
6  Government - State/Federal  
7  Local  
8  Public Utility/Communication  
9  Systems/Transportation  
10  Mining/Construction/Resourses  
11  Retail  
12  Other User (please specify) \_\_\_\_\_

Vendor

10  Manufacturer of Computers,  
Computer-Related Systems or  
Peripherals  
11  Computer Service Bureau  
12  Computer Consulting  
13  Computer/Peripherals Dealer/  
Distributor/Reseller  
13  Other Vendor (please specify) \_\_\_\_\_

\_\_\_\_\_

□ I have ordered #200 on the Reader Service Card to enter my Computerworld subscription for one year, 51 weekly issues and 12 Computerworld

Focus issues for \$44 and please bill me later. This offer valid only in the U.S.

B. Please check your main job function (check one)

1  Computer Management  
2  Financial Management  
3  MIS/Information Systems  
4  MIS/Information Systems  
5  Data Communications  
6  Data Communications  
Operations

C. Reasons for this inquiry: (check one)

1  Future computer purchase  
2  Future computer leasing  
3  Information only

D. Is this your present copy of Computerworld Extra? (check one)

1  My personal copy  
2  I'm a passing-around reader  
E. Please check the number of readership in your company: (check one)

1  Over 1,000 employees

2  501-1,500 employees

3  50 or under

Circle the # that corresponds to the number at the bottom of the item in which you are interested

1	21	41	61	81	101	121	141	161	181
2	22	42	62	82	102	122	142	162	182
3	23	43	63	83	103	123	143	163	183
4	24	44	64	84	104	124	144	164	184
5	25	45	65	85	105	125	145	165	185
6	26	46	66	86	106	126	146	166	186
7	27	47	67	87	107	127	147	167	187
8	28	48	68	88	108	128	148	168	188
9	29	49	69	89	109	129	149	169	189
10	30	50	70	90	110	130	150	170	190
11	31	51	71	91	111	131	151	171	191
12	32	52	72	92	112	132	152	172	192
13	33	53	73	93	113	133	153	173	193
14	34	54	74	94	114	134	154	174	194
15	35	55	75	95	115	135	155	175	195
16	36	56	76	96	116	136	156	176	196
17	37	57	77	97	117	137	157	177	197
18	38	58	78	98	118	138	158	178	198
19	39	59	79	99	119	139	159	179	199
20	40	60	80	100	120	140	160	180	200

Please  
Fill  
Out  
This  
Card  
For  
Editorial  
Comments

# COMPUTERWORLD *Extra*

## READER COMMENTS

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_ Phone \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

1. Which articles or topics were most interesting to you in this issue? \_\_\_\_\_
2. What topics would you like to see covered in a future issue of Extra on IBM? \_\_\_\_\_
3. What are your most important management problems? \_\_\_\_\_
4. What are your most important technical problems? \_\_\_\_\_
5. What topics would you like to see covered in a future issue of Extra on personal computers? \_\_\_\_\_
6. What do you like most or least about Computerworld Extra? \_\_\_\_\_



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO. 124 DALTON, MA 01227

POSTAGE WILL BE PAID BY ADDRESSEE

**Computerworld Extra**

Post Office Box 300  
Dalton, MA 01227-9882

Place  
Stamp  
Here

Attn: George Harrar  
Computerworld Extra  
375 Cochituate Road  
Framingham, MA 01701-9171

# THE LIFETIME OF A CPU

BY JACK VAN KINSBERGEN

**A** typical large mainframe CPU by 1989 will have installed 1,000 million instructions per second (MIPS) of CPU power as well as 10,000 megabytes (16 G bytes) of main storage and 1,000 megabytes (8 G bytes) of direct-access storage device (DASD) storage. The ratio of DASD to MIPS will be 8-to-1. In 1969 it was 3-to-1 in favor of DASD.

Users need to predict when to install new CPU power. A major part of the decision involves financing: evaluating how to buy. There are regular segments that can lead to reliable decision making.

How many people have acquired a CPU very late in its product cycle and ended up either being stuck with it or unable to acquire new hardware because of the financing arrangement on the current equipment?

The issue is to define a CPU's useful life and secondary market value such that you can maximize budget impact but maximize your flexibility to react to opportunities.

A key component is determining the useful life of the current equipment. This value is a function of three items:

- How long the current capacity will hold out.
- What the organization's policy is on staying technologically current.
- How quickly the vendor will introduce a new CPU.

**HOW many people have acquired a CPU late in its product cycle and ended up being stuck with it?**

Two premises help forecast the future of IBM processors. First, the introduction of processors is driven by a requirement to maintain factory capacity in support of revenue. Second, market values for used equipment are a direct function of the introduction of new equipment.

New equipment from IBM goes through four stages of useful life:

Stage one: The product is in full production by IBM, and there is no successor announced.

Stage two: IBM has shipped the succeeding-generation computer to its first customer.

Stage three: The succeeding-generation machine has achieved full production that is the new generation launched in its first stage.

Stage four: A third-generation machine has reached its first stage.

The announcement date is not mentioned because it is not as important as the first customer shipment or the state of full production. That is, the announcement date does not change the availability constraints on current equipment; there is no replacement available.

The secondary marketplace puts a different value on a CPU product in each stage. In the first, the product is worth approximately 25% of its value, as it is still in new production. At the second stage, current systems are still worth 60% or 70% of its price, since the new CPU is currently unknown. The secondary market for the current system drops off more rapidly, and soon, actually becomes the system's value.

Announcement of a CPU in Stage 2

adjusts the price/performance curve for the old system. And at the fourth stage, the old system is practically worthless as it is now two generations behind.

#### Look ahead

If you can predict when IBM will reach peak production on a next-generation CPU, you can judge when the minimum valuation of an installed CPU will fall to 30% or 40%. In order to examine this, you need to look at IBM's product history. Are there any key points established for each product line?

#### • Announcement date.

#### • First customer date.

#### • Onset of full production.

For the 300, 320 and 3300 series, the production cycles occurred every four years, with the 300 in 1967, 1971, 1975 and 1979. The announcement date and first customer date occurred twice from these four-year patterns, but IBM still needs to produce four stages.

If you look, for example, at the 370/165 or 370/166 in terms of the first year cycle, you would anticipate announcement in 1968. Actually, in 1968 IBM announced the 360/40 and 370/164, operations were less than successful. In fact, when 370/164 finally reached the market, there was a significant rebounce. The 3600 assembly would have been the expected product introduction for 1969. The 3600 announcement did not occur until 1970.

The lesson is that IBM will always let its production cycle duration not wait no more than it is given it is ready to announce. In fact, there will be enough parallel manufacturing activity going on that even if IBM changes its mind, it will still continue producing.

Moisture product lines will last eight years and will have two-stage depreciation curves, the second of which is a multi-year higher. Such succeeding machines at the high end will be regular price and sold as its predecessor.

IBM will continue its CPU production approximately every four years, although the schedule might be accelerating slightly. Announcements should follow the pattern, but the patterns will sometimes fail, as IBM will not announce before it is ready.

A user should project useful life and consider value of CPUs until the value fails to respond 30% about the time IBM is expected to introduce its next system.

#### The later, the cheaper

The point is that later in the product cycle you acquire a system, the steeper the depreciation line must be in order to reach the 30% point. At that point, it should be easy to determine whether the depreciation line makes purchase advisable or whether a lease or rental is more appropriate. Late in a product's life, it might be appropriate to buy a used machine to take over rather than make the commitment at the tail end of the cycle.

In many cases, users have stumbled in evaluating the financial considerations associated with the acquisition of new equipment. The biggest impact is the inability to move to new technology when it becomes available.

IBM is a manufacturing-driven company and makes its money from mainframe systems. If you approached this point, you can explore alternative hardware configurations — not just the primary point of view but from an expandable point of view as well.

IBM is a company that constantly and often updates its products. In fact, it is a company, Inc. in Somers, Calif.

## NEXT 12

FROM PREVIOUS PAGE

for Microsoft to deliver on OS/2. IBM wants to make its PC proprietary, which would mean taking over the operating system from Microsoft Corp. — especially if the company is significantly late in delivering OS/2. The scenario, however, "is far in the future."

**SEYBOLD:** "There will be a major version, or at least a manager version: a server for a local network." By mid-1988, the OS/2 applications will start being announced, along with an OS/2 version for the LAN Manager.

Third-party vendors are likely to support the PC family because of its large installed base, but IBM will migrate business users to the PS/2 line in the next two or three years.

#### On a new release of DB2 — great expectations.

**ATRE:** "They will have DB2 Release 4 in early 1988, February or March." By then the installed DB2 base will have grown from 1,600 to 2,000.

The new release will correct some shortcomings of the current version, particularly referential integrity. Just as significantly, don't expect any announcement concerning R-Star or Starburst distributed data base features in 1987. IBM may announce next month when OS/2 Extended will be available.

Possible upgrades to DB2 include QMF, which can be used for queries and report generation, and ECF, which connects micros to mainframe through SQL. The announcement of QMF may come in the first half of 1988, and the announcement of ECF may be made in the second half of the year.

**SEYBOLD:** "There will be a gradual migration to a distributed data base by 1990." IBM will take intermediate steps, enhancing and upgrading DB2.

**TANNER:** "Surely there will be an upgrade coming. I expect some activity in the next 10 to 12 months." IBM may rebundle a new version of DB2 in the MVS

operating system.

**WITTINGTON:** "There will be some kind of upgrade, but I don't know what. DB2 is IBM's darling." IBM will pour every resource into an improved version, but such software would need better hardware support than is currently available. "They need something to run it faster, maybe the parallel processing."

**DAVENPORT:** "There will be an upgrade in terms of ancillary features" such as improvements in speed, a data dictionary and security. A major overhaul of the program, however, is unlikely. "It will be quite a while before you see, for instance, airline reservations on DB2."

**KUTNICK:** "You can expect an

**"YOU can expect an upgrade of DB2 every six to nine months."**

**DALE KUTNICK**  
GARTNER GROUP, INC.

upgrade of DB2 every six to nine months." In 1988, there should be a 25% performance boost, improvement in referential integrity and better security.

**FLATTEN:** "An upgrade is coming, with some increase in performance." Regarding rumors of a repository in beta test in Europe, "I disbelieve European rumors — but not totally. It's badly needed, but they've cried wolf so many times."

#### On an MVS expert system — it's in the works.

**ATRE:** "I don't expect an MVS expert system this year. IBM has its hands full with SAA," which is still a phantom program itself. The problem with IBM's expert systems, in general, is that they require too large a machine. State-of-the-art developers who use expert systems do their work on smaller machines.

**KUTNICK:** "You won't see an expert system next year." IBM already has an expert system that

*Continued on next page*

**IBM...36.38.4300.30XX**

**UPGRADES**  
**PRINTERS**  
**CONTROLLERS**  
**DISKS**  
**TERMINALS**  
**FEATURES**



800  
258-2233

Circle Reader Service Number 58

## NEXT 12

FROM PREVIOUS PAGE

fits underneath it. What you will see is automated operations late in 1988 or early in 1989.

DAVENPORT: "The plan was to put in an expert system." The system may well be in beta test now and may very likely be seen in 1988.

WITTINGTON: "They already demonstrated an expert system for MVS at the Yorktown Heights, N.Y., research facility several years ago," and an expert system applied to scheduling will be coming soon.

TASKER: "I expect an expert system. It is a response to DEC." A version of MVS with the expert system should be available during the second quar-

ter of 1988 or early that summer.

SEYBOLD: "An expert system makes sense." Artificial intelligence is already in use in the 9370's diagnostics. IBM is under pressure to improve its expert systems. "Expert systems people are not enthusiastic about IBM's tools."

On the future of the Cross

**System Product (CSP) — what future?**

TASKER: "Enhancements to CSP are overdue" and should be coming in the next six months.

SEYBOLD: "SAA is the platform of the future. DEC doesn't have anything like it." Silverstar will be the first machine built for the SAA architecture.

WITTINGTON: "SAA is effec-

tively a replacement. IBM will go with it." There may be some enhancements to CSP, just to satisfy existing customers, but "it is not the main thrust."

DAVENPORT: "I don't hear much about CSP. SAA is the current buzzword." IBM may drop CSP in favor of SAA, "but some group at IBM is hard at work on CSP." Enhancements may show up in the near future.

KUTNICK: "CSP must become more like SAA." CSP needs a better interface and more features. There will be continual re-

\*\*\*\*\*  
*"SAA is giving IBM's friends a range of arguments against DEC."*

PER FLAATTEN  
 ARTHUR ANDERSEN & CO.

\*\*\*\*\*  
 leases with advances in both CSP and SAA.

FLAATTEN: "It's tough to call. I have a low opinion of CSP" because it is hard to work with. Some enhancements are likely between now and the end of 1988.

SAA is the critical development in the long term. "SAA is giving IBM's friends in the corporations a range of arguments against DEC."

With the steady development of SAA, IBM proponents within its large corporate accounts can deflect criticisms from DEC proponents.

ATRE: "The problem with CSP is that it is not really integrated with other products." CSP is an older product from the 8100 world, but it will stick around for at least another year.

"It is not a strategic product for IBM."

Ultimately, CSP may give way to SAA, but that is years away. SAA is still a concept in somebody's mind. The only thing on paper is 20 pages, which they gave out in May."

On the Series/1 — is the end here?

SEYBOLD: "Not much is happening." It is really a communications processor.

DAVENPORT: "It's primarily a data communications controller." If it has a future, it is for communications rather than computing. There is one scenario in which the life of the Series/1 may be prolonged:

"As desktop devices continue to proliferate, there is an increasing need for the function [of controller]."

In order to fulfill that function, the Series/1 would have to be upgraded, particularly in terms of the number of ports housed on it.

## How to Buy Time for Your IBM 308X.

At 30% Off.

### 1. Invest in EMC.

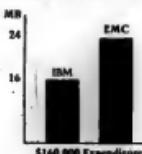
With the uncertainty surrounding IBM's next move in the mainframe area, adding a few more years to your system's productive life will pay dividends for you down the road. So why buy a new system, when EMC's main storage upgrade gives you the performance you need to make your current system your future workhorse. With EMC you save 30% over comparable IBM upgrades, which means buying time now for your 308X has never been a better decision. The simple "plug and play" design of EMC's upgrade makes improving the performance of your system as easy as adding sand to an hourglass.

### 2. Maximize Your Savings.

EMC uses state-of-the-art technology and production methods to offer our 308X upgrade at 30% lower cost than IBM. A 16MB upgrade from IBM is priced at \$160,000. For that same price you could buy 24MB of EMC main storage. That's an additional 8MB of main storage or a savings of \$60,000. Either way, you save with EMC. EMC also features continuous leases and trade-up credits so the return on your investment continues after your purchase.

### 3. Improve Performance.

By increasing your 308X's main storage capacity, you will improve system response time and increase your users' productivity.



EMC's 308X upgrades are 100% hardware and software compatible with IBM 3081, 3083, and 3084 CPU's. Upgrades are provided in 16MB increments and run all IBM diagnostics. Use of EMC upgrades will have no effect on your IBM maintenance.

### 4. Add Reliability.

To guarantee the most uptime possible for your 308X system, our upgrades use pre-tested logic components. Then they are subjected to 100-hours of test and burn-in procedures, which include qualification in one of our own 308X computers prior to shipment.

EMC is the leading independent manufacturer of main storage upgrades and other system enhancement products for mainframe and mid-range computers. All EMC products are supported by our worldwide network of sales and service offices.

### 5. Call EMC.

If you're interested in buying time for your 308X system, call EMC today at 1-800-222-EMC2 for your free information kit. Our 308X upgrade is the "midlife locker" that saves you money and improves your 308X's performance.

For more information, call today:  
 1-800-222-EMC2  
 (In MA: 617/435-2541)

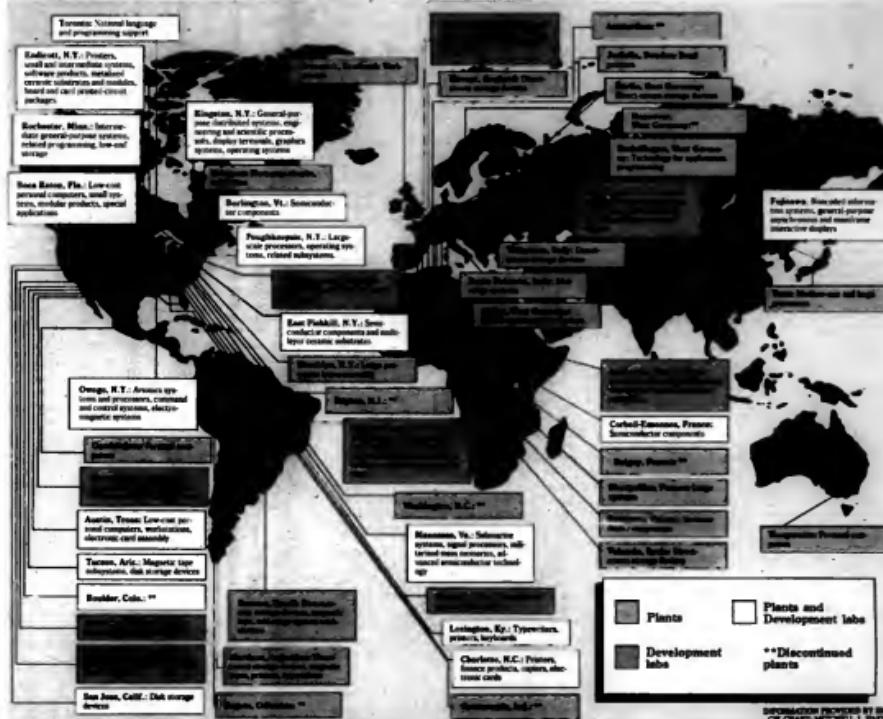
# EMC<sup>2</sup>

**The System Enhancement Company.**  
 IBM is a registered trademark of International Business Machines Corp.  
 Copyright 1987 EMC Corporation

Circle Reader Service Number 59

## IBM's worldwide manufacturing empire

*IBM's 35 manufacturing plants are located in many parts of the world to serve regional markets — development facilities are associated with most of the plants to link product design with manufacturing*



## THE \$20B INVESTMENT

No part of IBM is exhibiting more fundamental signs of change in 1987 than manufacturing. Massive redeployment, the closing and reassigned of plants and a new emphasis on production efficiency are all part of the restructuring of the company's multibillion-dollar manufacturing infrastructure.

During the last five years, IBM has invested \$20 billion in plants, equipment and property. IBM's revenue is not keeping pace with such expenditures, and many of the plants are operating below capacity.

Faced with this situation, IBM's only choice is to cut expenses. "We would like to reduce overhead by 20% to 30%," says Heinz Fridrich, IBM's director of manufacturing.

To meet this goal, IBM has transferred more than 15,000 manufacturing employees to marketing or service divisions. It is reducing the proportion of managers from 12% of the manufacturing work force to 8%.

IBM has closed a plant in Greencastle, Ind., marking the first time that a facility was discontinued rather than re-

signed. Plants in Boulder, Colo.; Hannover, West Germany; and Amsterdam have been re-signed to nonmanufacturing roles.

IBM has also added direct ROLM Corp. plants to its manufacturing facilities as it continues to absorb the telecommunications company. The additions include plants in Santa Clara, Calif.; Colorado Springs; and Austin, Texas.

Besides transferring workers and reducing the number of IBM plants (from 39 to 35), the manufacturing divisions are consolidating

dating by moving production lines out of some plants and into others that are working below their capacity. For example, production of IBM's Proprinter line was moved from Charlotte, N.C., to one of the company's most automated plants in Lexington, Ky.

The focus on efficiency is also seeking to cut overhead by reducing the number of workers required on each production line.

One result of the reduction is the loss of experienced manufacturing workers to other divisions. "When we move a young engineer with up to three years with the company to marketing, it creates a hole in manufacturing. I have to fill that somehow."

Environ Monit Assess

In the midst of these changes, Friedrich is trying to establish order. "What we did over the last 12 to 18 months is put some real structure in place and develop measurable goals. I tried to consolidate all of the things that we're doing so that everyone can look at it and agree upon how well it is being accomplished," he says.

Fridrich hopes the major changes from the consolidation are behind him. "If I have to lose four plants every year, pretty soon I'll be out of plants. It was an important direction, but now we're pretty much through the consolidation phase."

MICHAEL SULLIVAN-TRAINOR

► HOW TO ◀

# REMAKING MVS

BY STEVE PIGGOTT

**W**hen the folk singer Melanie asked the question, "What have they done to my song, Ma?" in the early 1970s, she could well have been echoing the sentiments of present-day IBM program developers.

But while the distinctive-voiced chanteuse couldn't see why her fellow artists needed to add their own embellishments to her simple melody, IBM is slowly beginning to appreciate why its customers insist on providing their own variations to well-tried and tested products.

IBM's principal operating system, Multiple Virtual Storage (MVS), together with its two major subsystems, Job Entry Subsystem (JES) and Time Sharing Option (TSO), are especially open to tinkering.

But is it so surprising that an operating system consisting of millions of lines of code fails to meet all the demands of its user base of close to 20,000 customers? It is surely unrealistic to expect any complex piece of software in its present form to meet the diverse needs of its users, and to this end, IBM provides a host of user exit points within its software so users can build greater functionality, usability or security into their systems.

These provisions are fine as far as they go, but MVS users still find the need to tinker with the actual code supplied by IBM and to add routines of their own in order to flesh up with a system that meets all of their requirements. IBM strongly discourages users from making direct alterations to its code, but many ignore this advice.

TSO is particularly susceptible to being adapted and extended. Vance Scarbrough, a senior systems programmer

at Daniel International Corp. in Greenville, S.C., found a major omission among the commands offered by TSO. He saw many potential benefits in a command that could quickly and easily search a sequential data set or an individual member of a Data Set and select certain records from it. As there is no such command supplied by TSO, Scarbrough set about writing his

own, incorporating a very comprehensive record filtering facility.

His final version confirmed his opinion as to its usefulness, and, following the routine's popular introduction, it was put to work, where it has been used in a number of varied applications. Many of these applications he had not originally envisioned.

The Command List (CLIST) facility of TSO provides programmers with the ability to write their own executable code under TSO using a language of its own. Most MVS installations have built up dozens of CLISTS to plug some of the functionality gaps of both TSO and MVS and, generally, to make the programmer's life easier. Swapping CLISTS is popular at many users group meetings.

Peter Hayden has written a CLIST that sorts data sets under TSO. He has seen his efforts well received at Tesco Stores Ltd., located in Welwyn Garden City, England, where he is currently a consultant programmer. By exploring the facilities of dialogue management, his routine can be executed directly from TSO or from the Interactive System Productivity Facility, commonly known as ISPF, which runs under TSO. Again, Hayden found it necessary to augment a widely used and popular piece of IBM software with code of his own in order to provide a rather basic facility.

JES is another area in which changes are frequently made. As with much IBM software, the user base is so broad and varied that JES is not geared to any one sector. For example, many users feel that the output produced by some of its master console display commands could be improved to help the operators. These users have found that ironing out some minor irritations and removing inconsistencies can considerably improve operator productivity.

Keith Sherwell, senior systems engineer at Grand Metropolitan Information Services in

Uxbridge, England, saw the advantages in extending the display produced by the JES \$DF command, which lists the jobs waiting to be printed on the JES output queue. Sherwell's modification adds a *form* parameter to the command so that the output can be restricted to the jobs of just one type of printed output.

His modification was written in two parts. The first part changes the JES module HASPCOMM to define an extra key word and to insert a user exit point, which is used in the second part. The second part contains the actual assembler code for the JES2 user exit routine. The operators at his installation can now display the JES printer output queues by form type. This ability allows the operator to schedule the work load on the printer much more efficiently.

Another UK site boosted the \$DI command, the JES command used to display initiators.

When \$DI is invoked at the operator console, it shows the job numbers of all active jobs, plus the job classes assigned to each initiator.

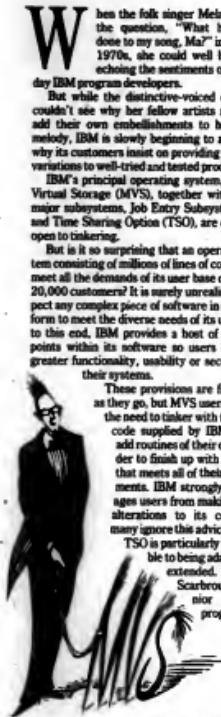
Unfortunately, the display does not show the names of the jobs that are running. If operators want this information, they must enter a series of \$DI commands, one for each job number in which they are in-



terested. As it was a frequent requirement for operators to know both the job number and the job name of the jobs executing, the site made a modification to the \$DI command that added job name information to the display.

The modification was in the form of a "sap," (a systems programming utility that makes changes directly and permanently to MVS load modules) to the JES module HASPCOMM. The modification exploits the fact that there is a provision in HASPCOMM for support of 36 job classes for each JES initiator. Since no installation is likely to need anywhere near this many, an amount of otherwise unused storage was freed up and used as a patch area for the modification.

Under MVS, magnetic tape files are protected against accidental overwriting by having the date they are protected by the operating system until written onto the tape when it is created. If a date-protected tape file is accidentally



ILLUSTRATIONS BY ROB DAVIS

Piggott is editor of "MVS Update," a monthly newsletter published by Xyphos Technology Transfer Ltd. in England. Xyphos' U.S. contact is at P.O. Box 4460, Winter Park, Fla. 32790. Piggott has 18 years of experience working in an IBM environment and was a systems programmer in an MVS installation before joining Xyphos.

mounted with a view to be written to, MVS issues an error message that gives the operator the opportunity of canceling the job or proceeding, thus bypassing this data protection.

A Brazilian contributor to the newsletter "MVS Update," published by Xaphon Technology Transfer Ltd. in England, perceives this bypass as a potential danger to security and has implemented much stricter controls at his installation. He added code to IFPG0193D, IFPG0196Q and IFPG055B — three IBM tape label processing routines — to pass control to a routine that he has written himself.

This Supervisor Call routine checks if the tape file's data set name has been cataloged. If it has, the tape is unloaded immediately, without giving the operator the chance to override it. At this site, all tape files must be uncataloged before the tape volume can be written to.

An Integrated Catalog Facility catalog gets corrupted during the course of running a day's work, it is necessary to restore the latest backup copy of the catalog and to reapply the updates that have been made to the catalog since the latest backup was taken. This action may sound simple, but there is no IBM-supplied utility that will reapply these changes to the integrated Catalog Facility catalog.

In practice, users must make their own arrangements and are responsible for writing their own solutions to the problem of forward recovery. This task is by no means trivial. Some installations weigh the advantages of having their own routine against the time, effort and expense needed to develop it, and they decide to live dangerously and do without it.

#### Recovery of "sick" catalog

Someone who has not been tempted onto this potentially dangerous path is Ian Fairbrother, a systems programmer with Eagle Star Insurance Ltd. in Cheltenham, England.

Having discovered that catalog management routines log to the SMF data set any additions, deletions or updates made to a Basic Catalog Structure, Fairbrother has written an assembler program that extracts this SMF data and provides a detailed report showing all the relevant information required for the successful recovery of a "sick" Integrated Catalog Facility catalog.

There is a good chance that Fairbrother's program will never be used "in anger," but at least he can relax, safe in the knowledge that it is there just in case it is ever needed.

Users who like to reset the performance groups of their jobs, especially those who like to run their batch jobs with a performance group reserved for CICS, IMS, JES, VTAM and so on, are definitely a problem. Not only can they cause more performance problems than they solve, but they can also seriously degrade any performance measurements based on performance groups.

It was just such an abuse of the MVS RESET command that confronted Bruce Bordonaro, system software manager at Electronic Data Systems Corp. in Mahwah, NJ. His solution was to enforce the same restrictions on users that were currently provided by the IEAICS member in SYSPARMLIB. The IEAICS member contains the initial performance group definitions for different batch users, started tasks and TSO users.

Bordonaro has added code to the RESET module IEEMB610, to branch to a

\*\*\*\*\*  
*IT IS unrealistic to expect the MVS master console to be manned permanently, with someone keeping an eye out for vital messages. There are, however, certain messages that should cause the alarm bells to sound immediately if they are ever encountered.*

routine that he has written himself. This routine then accepts or rejects the resetting of the job's performance group on the basis of the user's entry in the IEAICS member.

It is unrealistic to expect the MVS master console to be manned permanent-

ly, with someone keeping an eye out for vital messages. There are, however, certain messages that should cause the alarm bells to sound immediately if they are ever encountered. For instance, if a warning of no more available space in a user catalog is left unheeded, the consequences can be

quite disastrous.

Fortunately, there is a user exit provided, IEAVMOUT, which traps communications destined for the master console and allows users at this point to interrupt the normal flow of events by inserting their own code. In this way, they can intercept certain messages and execute their own actions when and if they occur.

Silvio Sasso, a systems engineer with Winterthur Insurances Co. in Winterthur, Switzerland, saw a potential mechanism for automating the way in which his installation deals with error messages that indicated a user catalog was full. Unfortunately, the error message he was checking for (IEF287) data set name, not CATALOGED 4), is not issued in a man-

Continued on next page

## Why our system programming classes are full of people who use our competitors' CPUs.

It's true. More than two-thirds of our students work in organizations that use our competitors' machines. They come to us for five reasons:

- Our instructors are veteran system programmers who've practiced what they preach.
- They're also professionally trained instructors who know how to preach what they've practiced.
- Our classes are small, so it's easy to have the sort of give and take that makes learning fun.
- Many are taught in labs with on-line systems, so students can practice what their instructors preach, hands-on.
- They know you have to be a good master before you aim to be a grand master.

#### Classes from 50+ sources.

This year's Amdahl Education and Professional Services curriculum covers:

- MVS
- MVS/XA
- SMP/E
- VSAM
- JCL
- VM/CMS
- CP
- VM/HPO
- VM
- IMS/VS
- ACIF/NCP
- ACE/VTAM
- SNA
- JES2
- ASSEMBLER

And you can take these courses in these cities:

- Atlanta
- Chicago
- Houston
- New York
- Columbia (MD)
- Los Angeles
- Orange (CA)
- Santa Clara (CA)

For a catalog that details our curriculum, call:

1-800-233-9521, ext. 74 or  
 1-800-233-5727, ext. 74 in California

**amdahl**  
 The SMART Choice

## MVS

FROM PREVIOUS PAGE

ner that enables it to be trapped for using IEAVMXIT.

Undoubtedly, Sasso then turned his attention to the routine that issues message IEF287I.

By changing this routine to issue an SVC 35, he was now able

to intercept the message and invoke his own procedures to ensure that, in the event of a catalog becoming full, no subsequent damage is done and timely action is taken.

## Sharing between jobs

Data set contention occurs all too frequently at many sites, caused by two or more jobs wanting to access the same data

set with one of the jobs unwilling to share it. MVS puts the job or jobs detecting the contention into a wait state and issues a warning message to the console operator.

This action can happen in quite normal circumstances and is quite a legitimate occurrence—or it can be the result of someone mistakenly coding DISP=OLD instead of DISP=SHR

on a Data Definition Job Control Language statement.

The warning message issued to the console operator fails to reveal who has reserved the data set. The data set could be being reserved by any one of many batch jobs, TSO sessions or started tasks currently executing on the machine.

To make life easier for the operators at Inter-City Gas Corp.

in Winnipeg, Canada, Rick Kaglik, a technical support programmer, has written and implemented a program under TSO to provide this information.

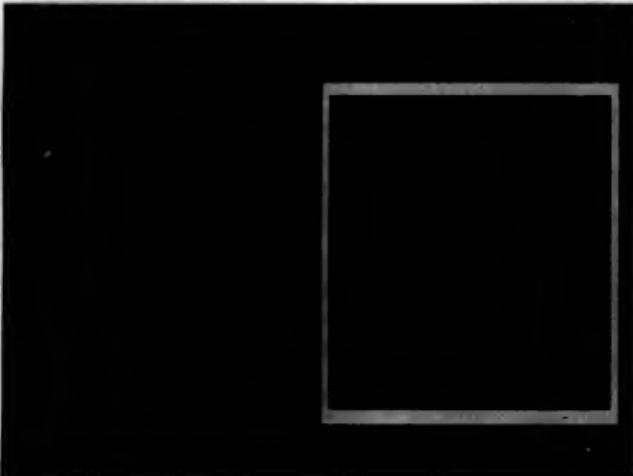
Anyone at his installation with the requisite authority can now tell at a glance who is preventing his job from proceeding and take the appropriate action.

A problem that confronts many performance analysts trying to evaluate the usage of resources made by IMS programs relates to the way in which IMS is positioned as an extra layer of software between the application and the operating system.

As a result of this, the name of the IMS initiation program,

*DATA SET contention occurs all too frequently at many sites, caused by two or more jobs wanting to access the same data set with one of the jobs unwilling to share it.*

## NATURAL 2. Maximum functionality for multiple environments.



Good news for DB2 users: beginning this January, NATURAL 2, Software AG's fourth generation application development technology, will support DB2 and SQL-DS data bases.

The availability of NATURAL 2/DB2 and NATURAL 2/SQL-DS means that you'll be able to use DB2 or SQL-DS data to develop truly portable applications, with functionality far beyond anything you could have built using COBOL.

And the same commands within your NATURAL 2 application can also process data from Software AG's data base management system, ADABAS, as well as from VSAM, DL/I, and IMS/DB.

Which is good news for just about everybody. So take a look at the Next Dimension in fourth generation technology: NATURAL 2.

NATURAL 2 provides the friendly look and feel of PC screens for mainframe applications, with functionality unmatched by other fourth generation languages. Better yet, NATURAL 2 solutions are available to DB2 and SQL-DS users. For more information about NATURAL 2 and other Software AG business solutions, call toll-free:

1-800-843-9534\*

\*In Virginia or Canada, call (703) 840-5050.

DFSRRCOO, rather than the name of the IMS program that is actually executed, is recorded in some System Measurement Facility (SMF) records.

To get around this problem, Edvin Vå, a senior systems engineer with Andahl Norge A/S in Oslo, Norway, has made use of the SMF step initiation user exit, IEFUSI.

By taking the program name from the Scheduler Work Area and putting it into a user-defined field in the SMF activity record, he is now able to extract important IMS information that he was previously denied.

**IBM frowns on changes**  
IBM takes every opportunity that it gets to emphasize to its customers how the implementation of user modifications will slow their migration to later software releases.

While user exits will work in nearly every case across different releases, there is no such guarantee in instances when the user has changed IBM-written code or has used his own method of interfacing with IBM software.

The fact that so many users choose to customize their systems to the extent that they are faced with huge amounts of work in resupplying these changes each time the software is upgraded underlines their determination to run systems that meet their business needs in full.

**software AG**  
PROGRAMMING BUSINESS SUCCESS

Circle Reader Service Number 61

## INTERVIEW

# David McDowell

## SERVICE BEFORE IT BREAKS



JOHN CAGLETON

**D**avid McDowell, president of IBM's National Service Division, is responsible for providing hardware and software service support for all IBM standard product lines. He started as a customer engineer in 1962 and attained his current position in July.

Computerworld senior writer Michael Sullivan-Traior interviewed McDowell concerning changes in the service division this year.

**In what ways is your organization carrying out the "Year of the Customer" theme?**

We have conducted customer interviews, focus groups and research studies to determine what the customers want and need. We are trying to get our offerings in line with those wants and needs.

Our goal is to create a better balance between our value and our pricing.

**What specific needs are you identifying?**

The customers are saying they need help in supporting their operating environment, not just fixing it after it breaks. They want us to do more to assist them with their environment. That might mean more help with installation, problem determination or facilities design and setup.

**How are you responding to those requests?**

We are making sure our field force is sitting down with the customer, understanding the customer and responding to his needs individually — uniquely, in many cases.

**Is there a single survey that assesses customer needs?**

No. That suggests there is a single set of needs. We are trying to be flexible enough to respond to each customer with an individual set of responses rather than trying to say there is one solution for a lot of people.

**What is the origin of the Corporate Service Amendment (CSA), and where does this offering fit in with your overall goals?**

Some of our customers are very good at the systems management procedures and operational disciplines that tend to prevent problems or at least reduce their impact. In fact, they were eliminating a lot of problems and, in effect,

screening out anything that wasn't an absolute maintenance call.

They did these things by installing help desks and implementing all of the account management disciplines and procedures, and that reduces our cost.

So the origin of CSA, or the mid-range part of CSA, is to pass our savings back to the customer if they are willing to do these things.

We have fewer service calls with these customers, and when we do have a call, we know a lot more about it. There is a lot of information gathered, focused and available when we arrive, so it reduces the time it takes and the absolute number of calls when they do all of these things.

**How many people have signed up for CSA and failed to meet the requirements?**

Not very many people fail when they apply. But by the very nature of applying, they've indicated an interest to do it. In fact, we will help them do it if they have not done it.

There have been very few that have failed the initial assessment, and none have failed the reassessment.

**The mid-range amendment has fewer qualification criteria. Does the same concept apply here? That is, are you making fewer calls and passing the savings on?**

It is the exact same concept in a less difficult environment.

Those customers will install help desks, and they will do the appropriate systems management procedures and account management disciplines. They will perform change control and problem tracking.

They will do all of those things regardless of whether it's mid-range CSA or CSA, and those

are the things that reduce our costs. It is perhaps to a smaller degree in the mid-range, but it is still a cost savings.

**Are CSA and the mid-range agreement a response to increased competition? For example, third parties have been more discount-oriented in the past, and now IBM is getting into the discount game.**

CSA is really a response to our customers, to their ability to demonstrate a savings to us. We tried the programs in test accounts for some months, and the customers demonstrated how it reduced service costs. That is the basis for our discounting.

**Are discounts on maintenance also given as a part of negotiations for equipment purchases?**

No, I have never heard of it.

Our basic principle is to give discounts based on our cost savings. If we have cost savings because of something the customer is doing or because of the particular environment the customer has established, to the extent possible we will pass those discounts back to the customers.

All discounts should be treated the same in this way.

**Is IBM making it more difficult for third-party competitors to obtain parts?**

IBM does nothing for the purpose of making it more difficult for somebody.

We will take actions that improve the level of service that we provide or make our service delivery more efficient and cost-effective, and in some cases we will take action to minimize any adverse impact on our people from a work load standpoint.

Those are the only things we will take action on. We will not take action to do anything to make it more difficult for anybody.

We have been selling parts to customers from branch offices. We will be discontinuing that and selling them from our distribution centers instead.

The reason for that is the lack of activity and expense of keeping the window open. The average branch office was selling less than one part a day, yet we had the expense of keeping the skills and paperwork going. It was very expensive to do.

Secondly, we stock a limited number of parts

*Continued on next page*

## SERVICE

FROM PREVIOUS PAGE

in the branch offices, and the way we determine what to stock there is according to the inventory that is under contract for that branch office.

We anticipate, based on that specific set of inventory, what the failure rates are and stock accordingly.

Any unexpected sales will mean that a part may not be there when it is needed.

So you have to compensate for that by overstocking.

Because of a combination of overstocking and a lack of activity, it didn't make business sense to keep that window open.

**"WE ARE TRYING not to just fix a machine after it breaks, which is where remote service is most efficient and effective. We want to do more up-front and predictive maintenance. We want to get in and understand a customer's environment."**

DAVID McDOWELL

PRESIDENT, IBM'S NATIONAL SERVICE DIVISION

Are more of your service personnel being deployed out in the field?

We are doing some limited hiring. We have also added about 400 transfers

from manufacturing and development locations in the last year to year and a half.

People are placed in different areas depending on their skills and their inter-

ests. We give them a choice based on what they want to do and their geographic preference and whatever is available.

Most of the people transferred become customer engineers.

**What's the main purpose of beefing up personnel in the National Service Division?**

We want more of a presence in the customer sites. It is a growing business.

We are trying not to just fix a machine after it breaks, which is where remote service is most efficient and effective.

We want to do more up-front and predictive maintenance. We want to get in there and understand a customer's operating environment.

We want to see what we can do to minimize the impact of a failure if it does occur and understand what we can do to keep a failure from happening.

We want to get involved in planning with the customer to make sure what we are doing is conducive to meeting their goals.

That is not remote activity. That is presence.

**Do these calls involve on individual service as well as on individual from marketing?**

Marketing is in the business of selling solutions to customer problems, and service is part of that solution. Service and marketing tend to work together in solving the problems of a customer's environment.

We've had joint calls for a long time and will continue to do that. We're presenting an IBM face to the customer.

**Is there more emphasis being placed right now on obtaining service revenue from the mid-range than from the mainframes because of the slowdown in mainframe sales?**

I wouldn't break down maintenance revenue by product. That is not where we are going.

We are looking at maintenance revenue based on the customer's operating environment.

We have machines that fail once every 15 years. It becomes less important how much revenue you are getting off that machine.

We are looking at what kind of value we are providing to that operating environment and what kind of revenue comes from it.

A lot of the things that I've talked about — getting involved with helping the customer more, preventing problems, doing systems-level analysis — these aren't product-specific anyway.

It really becomes less and less useful to look at revenue by product.

**What reaction are you getting from customers? It seems that you are asking them to invite you to join them in their planning process.**

No. The customer is asking us to do the things. He doesn't want to have a

The customer wants us to do more to prevent failures, analyze what is going on with their system and participate to completion on a problem where perhaps neither they nor we know where that problem is.



### ...ABOUT ANALYZING YOUR DATA

You might be spreading your spreadsheet a little too thin. Or maybe you're starting from scratch. But if you're serious about data analysis, you're ready for SPSS/PC+™ — a full software family that brings you eight high-powered ways to complete any data analysis task.

Enter it. SPSS Data Entry II™ is a fully integrated data entry, cleaning and editing tool.

Analyze it. The SPSS/PC+ base package provides a powerful set of statistical and reporting procedures.

Picture it. SPSS/PC+ Graph-in-the-Box™ featuring New England Software's Graph-in-the-Box™ offers full color "enhanced" graphics.

Examine it. SPSS/PC+ Advanced Statistics™ lets you get more serious with your data.

Predict it. SPSS/PC+ Trends™ — our latest option — is the complete time series analysis/forecasting tool.

Table it. SPSS/PC+ Tables™ produces presentation-ready tables instantly.

Chart it. SPSS/PC+ Graphics™ featuring Microsoft® Chart creates show-stopping graphs and charts.

Map it. SPSS/PC+ Mapping™ featuring MAP-MASTER™ creates maps where vast amounts of data can be summarized and presented in one, simple picture.

SPSS/PC+ products are being put to productive use by serious fact finders in business, government and education.

For countless purposes such as market research, wage and salary studies, survey analysis, and quality control. Plus each product is superbly documented and supported by SPSS Inc., a leader in statistical software for nearly 20 years. When a specialized customer support is available through the VALUE PLUS™ plan, And SPSS now offers a SPSS/PC+ version for Novell LANs.

So if you're serious about data analysis, step up to SPSS/PC+. For details, contact our Marketing Department.

**CALL 1/312/329-3312**

**SPSS Inc.**

SPSS Inc. • 444 North Michigan Avenue, Suite 3000 • Chicago, Illinois 60611  
In Europe: SPSS Europe B.V. • P.O. Box 119 • 1000 AC Amsterdam, The Netherlands • Telephone: +31 30300711 • TWX: 21019

SPSS/PC+™ is a trademark of SPSS Inc. with legal rights. Contact SPSS Inc. for complete information. SPSS/PC+™, SPSS Data Entry II, SPSS/PC+ Graph-in-the-Box, SPSS/PC+ Advanced Statistics, SPSS/PC+ Trends, SPSS/PC+ Tables, SPSS/PC+ Graphics and SPSS/PC+ Mapping are trademarks of SPSS Inc. and Chart and Microsoft are trademarks of Microsoft Corporation. TWX is a trademark of Western Union. Inc.

Circle Reader Service Number 62

## THE BOTTOM LINE

## COST CONTROLS DRIVE PROFIT

BY MICHAEL GERAN

IBM is expected to report revenue of slightly more than \$54 billion this year, but its net earnings are expected to be only \$5.2 billion. Although the firm's revenue rose 19% during the last three years, net earnings declined an estimated 20%.

It will be mid-1988 before the company can report strong year-over-year revenue gains. As a result, IBM's profit recovery will be cost-driven in the short term — in other words, a slower rate of increase in costs than in revenue.

IBM is a marathon runner, not a sprinter. The firm's size, complexity, product overlap and management style have resulted in extended product cycles and

an evolutionary, not revolutionary, transition.

The company needs multiple major new product cycles to grow as fast as the industry. Today, unlike in the past, IBM requires all three principal product lines — mainframes, personal computers and mid-range systems — to be synchronized. By 1990, annual revenue from PCs, workstations and mid-range computer systems will be about equal to mainframe revenue.

At this point in IBM's product cycle, costs are fixed and revenue gains are modest, resulting in margin pressure. However, two changes began in the third quarter:

First, an early retirement program of about 13,000 employees reduced the increased rate of selling as well as general and administrative, research and development and engineering expenses.

Geran is first vice-president, equity research, for E. F. Hutton & Co. in New York.

Second, better-than-expected foreign currency translations and an increase in Personal System/2 and 3090E shipments improved year-over-year revenue-gain comparisons.

By contrast to this year, the earnings outlook for 1988 is brighter, enhanced by the following developments:

• New products will be in volume production.

• Full-year effects of this year's employment reduction will be noticeable, especially in the manufacturing area.

• Strengthening cost controls should mean that a moderate revenue increase will translate into better margins.

Processors are IBM's largest source of revenue and one of the most cyclical. After strong gains in 1986, the projected increase for this year is only a modest 1% to 2%. The outlook for 1988 is brighter, with an expected 10% to 11% increase.

Since the 1987-1988 forecast for processors is, to say the least, contentious, an additional comment is warranted. A modest gain for IBM this year, despite a lower dollar, reflects the continued weakness in mid-range products as well as the need for aggressive price reductions.

In effect, the moderate gain in large mainframe sales from the 3090 family will not be enough

to compensate for mid-range product weakness.

However, beginning in 1988, the trend should change, because IBM will be able to ship in volume two new systems with the needed software. The firm should ship 5,000 to 6,000 9300 systems this year and 18,000 to 22,000 in 1989.

The majority of this year's shipments will be in the last four

Continued on next page

## IBM'S PROFIT SLUMP

IBM's profit growth should resume as new product strategies take hold



INFORMATION PROVIDED BY E. F. HUTTON  
CHART: MCGRAW-HILL, INC.

## IBM Watch

The definitive IBM newsletter  
from IDG Communications

Is it important to your job to know what IBM is doing? Twice each month, IBM WATCH tells you what's really going on with IBM, what's likely to happen, and the implications for you and your company.

IBM WATCH is devoted entirely to the world of IBM. Each 12-page issue is packed with exclusive news and analysis concisely written for busy people who must know what this industry giant is doing today, and what its next step will be.

IBM WATCH is published by IDG Communications, the same company that brings you Computerworld, Infoworld, PC Week, Macworld, and more than 80 other publications in 30 countries. The IDG News Service spans the globe with daily coverage of the computer industry. All these resources are marshaled to bring you the latest news of IBM, and explain what it means for you.

Send for your free sample copy today.

Yes, I need to watch IBM.  
Please send me a sample issue of IBM WATCH.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Mail to: IBM WATCH • Post Office Box 106  
State House Station • Boston, MA 02138



## microDCF ...The Modern Way!

Speed and Convenience for SCRIFT and GML users

IBM made SCRIFT and GML into the DCF document composition standard in mainframe installations everywhere. With ALSI's microDCF you can now supercharge your PC workstations to get even greater power and flexibility.

## Mainframe Compatible Source Text and Macros

If you have become accustomed to utilizing the powerful capabilities of Mainframe SCRIFT and GML such as making many fonts on a line, interspersing text with raster graphics, producing several columns side by side and automatically producing cross references and indices within the largest documents, then you will be interested in microDCF. You can conveniently use all of these functions and many more on your IBM or compatible PC/AT, PC/XT or PS/2.

## Laser Printers and Impact Printers

microDCF lets you choose one of several popular desktop laser printers such as the IBM 3812 page printer, the Hewlett-Packard LaserJet Plus, or the Xerox 4035 as well as popular impact printers such as Epson and the IBM ProPrinter. Before committing anything to paper you can preview all or part of your formatted document on your display screen.

## ARRIX LOGIC SYSTEMS INC.

For More Information Call ALSI at: (414) 292-6423



Circle Reader Service Number 63

## COST CONTROLS

FROM PREVIOUS PAGE

months of the year.

The principal reason that 9370 shipments will be modest this year is because IBM will not be able to ship the needed networking software until the second quarter of 1988.

**Expanding the 3090, System/36**  
In 1988, in addition to strong gains in 9370 shipments, two other processors will be positive contributors — the 3090 and System/36 and 38 families. Strong demand for upgrades and new models with better price/performance will lead to a modest increase in 3090 revenue.

Also, IBM will be in a position to ship new models in the System/36 and 38 families and, most likely, the initial models of Silverstar, as the System/3X add-on has been dubbed. As a result, IBM should increase processor revenue by about \$1.4 billion, equaling between 10% and 11% in 1988.

IBM's second largest revenue source is peripheral products (35% to 45% of total systems value). Disk drives account for a majority of peripheral revenue, with tape drives and printers following.

In the first half of this year, IBM was at the end of its product cycle for disk drives. But beginning in 1988, there will be major new disk drive products for the three processor families: the workstation, the mid-range and the high end. This step-by-step

acceleration in shipments should increase revenue modestly this year (about 1% to 2%) and significantly in 1988 (about 9% to 10%).

For the high end — the 3090 family — IBM will have a new large system with a new-generation controller, the 3990. Although this product has been delayed by firmware difficulties, it could be a big winner in 1988.

The new subsystem — new disk drive and new controllers — will provide lower per-unit storage cost; faster access because of a large buffer and faster I/O throughput, especially in transaction processing applications because of a significant increase in channel specifications; up to four-way routing in the controllers; and larger block size.

IBM is also offering new models for the other two processor families. In the case of workstations, IBM recently announced a 314M/628M-byte Winchester unit, which, for the first time, uses thin film media. This 5½-in. unit offers a lot of storage in a very small space. IBM plans to begin shipping it in volume in 1988.

Accompanying new 9370 and System/36 and 38 processors in 1988 will be a new model drive with mid-range capacity, a small footprint and a very fast I/O speed, which is needed in mid-range systems to rapidly service terminals.

Principally as a result of the success of IBM's PCs, the workstation/operating system category is now IBM's third largest source of income, and by 1990 it will probably rank second. Led by an 18% to 22% increase in PC shipments this year, the outlook for a return to growth this year is quite good after the decline experienced in 1986.

The PS/2 is off to a very strong start.

**PROGRAM products are the fastest growing revenue source for IBM, a trend that is expected to continue. This revenue is expected to increase 23% this year and about 21% in 1988.**

with 300,000 units shipped in the second quarter and a sequential increase planned for the rest of the year.

There will likely be another strong gain in 1988, up 13% to 14%. In effect, in 1988 there will be a full year of production, compared with less than six months this year for the larger PS/2 models.

The slowdown in growth rate for maintenance services that began this year should continue in 1988.

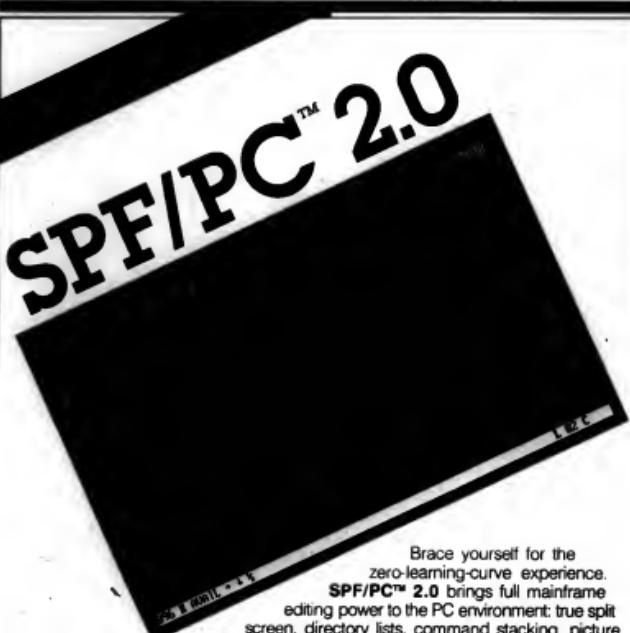
Behind the slowdown are the improved reliability of new products; IBM's extension of product warranties, which depresses maintenance income in the short term; and an increase in competition, which is causing more prevalent price cutting.

### Fountain of revenue

Program products are the fastest growing revenue source for IBM, a trend that is expected to continue. However, the rate of increase is expected to moderate, given the current \$5.5 billion in revenue for 1986. Program product revenue is expected to increase 23% this year and about 21% in 1988.

The trend is so strong that, by 1990, program products could rise to fourth in ranking. There are several contributing factors to this favorable trend, including expansion in product line and higher prices.

As IBM increases the functionality of its software products, especially in the operating system, data management and communications areas, the company has been able to charge more. In addition, IBM is expanding the application software category, thus adding to its revenue base.



Brace yourself for the zero-learning-curve experience.

**SPF/PC™ 2.0** brings full mainframe editing power to the PC environment: true split screen, directory lists, command stacking, picture strings, 43-line-EGA and 50-line-VGA support, binary file editing, the latest mainframe commands and much more.

Need proof? Call or write for a free demonstration diskette.

**SPF/PC™**, so much like the real thing, you'll forget you're editing on a PC.



Command Technology  
Corporation

1900 Mountain Blvd., Oakland, CA, 94611 (415) 339-3530 Telex: 509330

Circle Reader Service Number 84

COMPUTERWORLD



► EXIT ◄

# AROUND IBM

**W**hat follows is a collection of notes on research, marketing and administration at IBM in 1987 that was compiled by senior writer Michael Sullivan-Trainor.

**In the labs.** In October, scientists at IBM's Zurich research laboratory won the Nobel Prize in physics for discovering high-temperature superconductivity (the ability of certain materials to conduct electricity without resistance) in a new class of materials.

J. Georg Bednorz and K. Alex Mueller found that a particular class of oxides becomes superconducting at temperatures significantly higher than the previous upper limit, established 13 years earlier.

The old limit of 23.3 degrees above absolute zero, or 23 degrees Kelvin, was reached in 1973 using a compound of nickel and germanium. In 1986, Bednorz and Mueller found superconducting oxides at 35 K. Earlier this year, a group of researchers at other laboratories around the world found an oxide composition that becomes superconducting above 90 K, opening up further study of the material's potential.

Last year's Nobel Prize in physics went to IBM scientists Gerd Binnig and Heinrich Rohrer for inventing the scanning tunnelling microscope, which allowed surfaces of materials to be seen at the atomic level for the first time.

In a more immediately applicable breakthrough, engineers at IBM's Essex Junction, Vt., facility have developed a computer chip that can store four times more data than the memory chips now used in the company's most advanced computers. The experimental chip can store more than 4M bits of information, yet it is only one-third larger than the 1M-bit chips that are currently in volume production. It operates about 1.5% faster.

IBM is building a new semiconductor facility in East Fishkill, N.Y., that will incorporate innovative technology from the concept stage through production. Called the Advanced Semiconductor Technology Center, the plant will feature electronic-beam characterization tools and a compact electron-charge-ring lithographic tool. The ring uses X-rays to produce lines less than 1 micron wide. Construction of the 225,000-sq-ft center began in December 1986 and is scheduled to be completed in 1989.

**Pushing products.** This year, IBM began shipping more than 700 new hardware and soft-



*IBM employee Don Lamontford holds an overseas model of the 'golf ball' print element from IBM's Selectric typewriter.*

ware products, including the 3090 Model 600E, its most advanced computer.

Cornell University's National Supercomputer Center purchased one of the first \$20 million Model 600Ea, obtaining 60% more processing power than it had with its installed 3090 Model 400.

IBM boosted its storage systems with the 3380 disk control unit, upgrading capacity to 2.5 billion characters per stack of disks, access speed to 16 msec and read/write speed to 3 million char./sec.

In the mid-range, IBM provided delivery of two models of the 8370 in July, nearly two months ahead of schedule. Other 8370 models were available in October.

IBM had shipped its millionth Personal System/2 by the end of October, but how many units included the Micro Channel? Analysts estimate that more than 40% of the high-end PS/2s were shipped.

After holding up for 26 years and logging more than 13 million unit sales, IBM's Selectric typewriter, the last that used the "golf ball" print element, was sold. The Wheelwriter and Quietwriter series, both electronic typewriters, replaced it.

As part of its new vertical market strategy, IBM fortified its banking line with new product announcements early this month. The 4700 Financial Communications System, including the 4702 processor and 4701 controller, will be enhanced with new displays, printers, connectivity options and operating system extensions. A new financial workstation family based on the PS/2 will also be offered.

In addition to these enhancements, IBM replaced its automated teller machine with a new generation and added a 1,000 document/min check reader and sorter.

**Changes at the top.** In March, IBM's board of directors named former salesman Kaspar Cassani and former engineer Jack Kuehler as executive vice-presidents.

Cassani assumed the responsibilities of former Vice-Chairman Paul Russo, who retired in August. Cassani is now responsible for IBM World Trade Europe, Middle East, Africa; the World Trade Americas Group; the World Trade Asia/Pacific Group; and IBM's Information Systems Group.

Kuehler is responsible for IBM's Federal Systems Division. In addition, he remains in charge of the Information Systems and Storage Group and the Information Systems Technology Group. Senior Vice-President C. Michael Armstrong, a former systems engineer, succeeds Cassani as president director general of IBM Europe.

While consolidating its marketing organization into five divisions and restructuring manufacturing, IBM created two new units to represent new interests: software and mid-range systems.

Vice-President Joseph Guglielmi was named president of the new Application Systems Division, and Vice-President Larry Ford was named assistant group executive for mid-range systems. Both report to Edward Lacoste, vice-president and Information Systems Group executive.

**Overseas deals.** Denmark's largest local telephone company, Copenhagen Telephone Co., joined with IBM last summer to form DanNet, a \$15 million value-added network services company. The company will begin operations in January 1988.

IBM's Software Development Support Center in Sydney, Australia, is acquiring international marketing rights to existing Australian software products and is finding new developments. These moves are seen as part of an effort to help Australia's growing software industry break into world markets. The action comes at the same time as efforts by the Australian government to encourage high-tech exports.

**Still No. 1.** Executives of 615 corporations interviewed in a survey sponsored by the American Society for Quality Control named IBM the No. 1 company, in terms of overall quality, by more than a 2-to-1 margin. The award was presented at the group's annual National Quality Forum in New York.

Too many people  
have been led to believe  
only IBM is experienced  
enough to service  
their computers.



For years, you've believed that only IBM has the expertise to service your computer. But that's just not true.

Because at Control Data, we've been in the computer maintenance business for over 25 years. And we fix everything from PCs to mainframes - even mixed peripherals.

So before you're led into signing another one of their service contracts, call us instead. **1-800-828-8001, ext. 581**. In Minnesota 612-853-3400, ext. 581.

---

**CD** CONTROL DATA

---

## SYSOUT Management Made Easy With \$AVRS

UNTIL NOW there has not been an integrated approach to the management and archival of SYSOUT and SYSLOG. \$AVRS, from Software Engineering of America, solves this problem by completely automating the management and storage of this critical JES output.

### \$AVRS features and benefits:

- ability to capture and distribute all types and sizes of reports and listings
- savings in printer and paper costs
- savings in personnel costs
- comprehensive production and test JCL error checking
- immediate access to JCL of failing jobs through any terminal
- complete ISPF interactive and batch retrieval facilities
- archival and retrieval of SYSOUT by class, name, time, etc.
- increased data center security

\$AVRS is saving thousands of dollars daily at over 1750 data centers by providing efficient and cost effective management and archival of SYSOUT and SYSLOG.

To obtain further information on how  
\$AVRS can benefit your installation, call  
SOFTWARE ENGINEERING OF AMERICA at (516) 328-7000.

SOFTWARE ENGINEERING OF AMERICA

SEA